Part 2 BRLSI Researchers Project in Action

We now tell you how the idea translated into action with brief details of how the other participants became involved, the approach taken to planning the sessions and what happened in them and at the Bath Taps into Science event, the mini conference and the sessions that informed this publication.

2.1 Inviting Participants

Paul S recruited the PhD students and agreed to lead the project from the point of view of the University. Paul T invited BRLSI member and volunteer, Marie Huxtable, who had previously developed APEX and had been part of the BRLSI Youth Activities Programmes since it began, to join the project team. Paul T and Marie worked up a short paper dealing with the terms of reference and criteria and associated tools such as evaluation, feedback procedures, planning, investigation and recording formats. (Appendix 2)

Paul T contacted parents of teenage members from the BRLSI Youth Activities programme to tell them about the project and invite them to apply. Details circulated to potential participants, which provide a basis for development, implementation and evaluation, are shown below:

BRLSI Young Researchers Project 2014 -2015

The project is linked to the University of Bath's Department of Architecture and Civil Engineering research programme. It will deal with aspects of the built environment in the centre of the city of Bath.

The 6 month project aims to: enable 13+ young people to learn from and with doctoral students what it is like to be a researcher by completing a meaningful research project which might contribute to a post graduate research thesis.

The project will provide the young researcher with opportunities to:
- Create and research a question
- Develop an ability to enquire in a disciplined and creative scientific manner and have the opportunity to learn to work within a time frame
- Acquire and improve skills in the formation and identification of hypotheses
- Acquire and improve skills in observation
- Accept responsibility for practical research tasks
- Learn to record results and also record progress in learning
- Improve skills in presentation
- Reflect on their own learning, the research process and what they have learned for themselves
- Make a valuable contribution to the learning of other people by sharing the research by, for instance creating a public artefact such as a 'Bath Geology Trail,' (paper or web version), an article for a magazine, a poster, an oral presentation to BRLSI children's workshops, BRLSI members
- Make an action plan of what they wish to research next

The project also aims to enable postgraduate students to:
- Further develop an awareness of the processes of research and learning
- Further develop skills in the communication and presentation of research information by communicating effectively the contents or part of the contents of their own research projects
- Reflect on their own learning and research skills
- Acquire academic supervision skills by working with 13+ in meaningful and realistic research

Several young people indicated an interest and they recruited some friends. Rooms were booked in the BRLSI premises and participants enrolled. Paul S and Paul T met with members of staff from Bath Spa University to investigate whether it was possible to involve third year undergraduates in Graphic Design Department to help with the presentation of the project. Paul T and Paul S visited the Bath Spa University to try to encourage students to accept the commission but they were too busy with course work. Paul T then contacted a BRLSI member who is a graphic designer and she agreed to take on the commission and Bath Tourism agreed to co operate by trying to integrate the trail into their website offer.

All the sessions ran on the second Saturday of the month alongside the BRLSI Youth Activities workshops running in other rooms in the BRLSI building. This meant that parents could dropped younger siblings attending the workshops at the same time as they brought the teenager to the session. At times this put pressure on room booking and the session had occasionally to be held in the room where BRLSI members had lunchtime meetings and coffee. While this was a little inconvenient for some members it did mean that more of them were aware of what was going on and one even stayed and contributed to part of a session.

The rooms were large enough to accommodate the whole group and had tables and chairs that were easy to rearrange during the session for small group supervision and whole group discussions. Rooms also had a good internet connection, a laptop, projector and screen, flipchart and A4 paper, pencils and pens. Research Portfolios (Appendix 1) were printed ready for each young person and student. Paul T, Paul S, and Marie met to plan the first session and agree the style of delivery, the inputs and outcomes.

2.2 Approach to Planning

Paul T, Paul S and Marie met prior to each session to prepare. They reflected back on the previous sessions and looked at the feedback sheets to see if there was anything they could learn from what had happened. The conversation focused round what might be done in the next session to enable the young people to experience what it was like to be 'real' research scientists in a research group, where they were in developing their research and what would help them progress, and what skills might be useful to them. The conversation didn't follow a set agenda but rather flowed between the three members of the project team so they were able to draw on their different perspectives, experiences to develop a programme for the afternoon that provided a balance of active 'hands on' fun, time for conversation between young researchers and their supervisor and group, reflection, planning, and engagement with the whole group.

From the discussion Paul S developed an outline schedule (an example in Appendix 3) to provide a reference point for Paul S and Marie during the session. Rather than serving as a constraining script it was used creatively and often changed during the session depending on the educational needs of young people. Paul T developed and provided feedback sheets, and additional planning and

reflection sheets for the young people to complete and add to their Research Portfolio. Data was collected in the form of video and photographs. Permission was sought and given for video and images to be used as part of the project's research.

2.3 What Happened

Session 1 - 8th Nov 2014

The focus of the 1st session was to introduce all participants to each other and the opportunity the project offered for them to enjoy learning, and creating and contributing knowledge by researching something that was of energising interest to them. We were aware that learners irrespective of age or experience could feel nervous when going somewhere new physically, socially, intellectually, and/or personally. This was an important consideration throughout the project and particularly in this introductory session. We were also aware that the form of learning and research that we wanted to engender through the project might be unfamiliar to all participants. From experience we anticipated that at least some might find challenging the expectation that all participants accept responsibility for contributing to and benefiting from their own learning and that of others. We were also aware that the notion of research we were introducing, that of creating and contributing knowledge rather than simply finding out what is already known, might be novel and therefore challenging. Finally we kept in mind our intention to provide an opportunity and support for young people to develop their expertise and knowledge as expert researchers and learners in the process of researching a question of personal interest, within a time frame and with a valued outcome.

We planned this first session with a mix of activities including talking, listening, small group discussion and whole group activity, movement and writing, to set the scene for the programme. The session was structured to participants to begin to feel part of a community of researchers, to have had an opportunity to talk to and listen to others and find out who might share an interest in a similar question, learn a research skill and to begin their research.

We began with an introductory exercise to enable participants to begin to get to know one another and feel at ease moving, talking and listening in an unfamiliar space in the room. We also wanted the young researchers to begin developing cooperative educational relationships rather than the hierarchical relationship they were probably more familiar with, which can stifle or suppress creative, productive research as this story illustrates:

> 'The recent Nobel prize in chemistry was won by an Israeli - Dan Schechtman for his discovery of quasi-periodic crystals. When he "noticed" this first - about 30 years ago - he couldn't believe it, and when he announced his work, Linus Pauling - who had by then won TWO Nobel prizes, in different fields - essentially called him a fool and a charlatan. And he was then asked to leave the research group in which he had been working. But he was convinced he was right, and persevered - and the rest is history. (Personal email from Michael Neugarten, 4th January 2012)

All participants were asked to form two concentric circles, the inner circle facing outwards and the inner circle inwards, with young researchers, their prospective supervisors and the project leaders mixed together. The instructions were for each person to introduce himself or herself to the person opposite find something they had in common. Each person had just one minute to speak before the circle moved on. The exercise was repeated until all introductions were complete. This was the same icebreaker used in the 'sandpit' where Paul T and Paul S met for the first time.

The activity proved to be a good, energising 'icebreaker' giving a whole group feeling. After a break we moved onto a small group activity so the young people could learn more about the research the students were engaged in and find with whom they shared an interest. This gave the supervisors an opportunity to communicate their research; the young people a taste of 'real' research, to begin to talk with their potential supervisors and the other young people as potential fellow researchers, and to decide which supervisory group they would like to work with.

The students each moved to a table and the young people were asked to join one table, avoiding existing friendship groupings. The supervisors had 5 minutes to introduce their research topic to a small group of young people moving to another table to listen to and talk with the next student.

Figure 1 Session 1 - Getting to know each other and our research interests

When the young people had talked with each of the students they were asked to move to a table with the student whose work they would like to find out more about and who would become their research supervisor.

The practicalities of the project were gone over including the time line for the project, the schedule of meetings and finale, possible outputs, and the email and web based communication. The research journal/portfolio together with BRLSI planning and observation sheets were given out to introduce participants to issues concerning recording as a researcher. The young people worked in their small research group with their research supervisor to learn more about recording as a research scientist before feeding back to the whole group.

Attention was draw to the TASC (Thinking Actively in a Social Context) wheel (Wallace, 2000) that was in the back of each Research Portfolios, and which is also used by children who attend the BRLSI Youth Activities workshops. The

TASC wheel was used as it presents a simple and elegant summary of the research processes in many disciplines, including science, technology, engineering and maths. It has been used successfully in schools with children and young people over many years. Joy Mounter demonstrates in her Masters unit (Mounter, 2008), *'Can children carry out action research about learning, creating their own learning theory?*', how even very young children can understand and critique TASC to produce their own learning theories. Sally Cartwright (2007) in her Master unit, *'How can I help my students understand and develop the skills of independent learning?*', demonstrates the use of TASC with secondary school age learners. Marie (Huxtable, 2012) demonstrated that doctoral researchers could also use TASC.

Figure 2 TASC (Thinking Actively in a Social Context) Wheel by Belle Wallace

The young researchers were encouraged to use a variety of methods, such as videoing, sketching, keeping a journal and/or diary, to record their research and learning journeys during the project. The young researchers then spent time working in their small groups with their supervisors to begin asking and answering questions such as: What is your possible topic? What do you already know about your topic? What do you want to find out? What do you hope to do next? Recording their thoughts in their Research Portfolios.

Figure 3 Young researchers learning to record their thinking

Whilst they worked in their groups all participants were asked to speak individually to camera for just a minute to record why they had come and what they hoped for by participating in the project. You can hear what they have to say by visiting:

https://youtu.be/IyN4a7bjgXs?list=PLUAuUrjrSdqbpXH38LPxS_7Uec786iyEA

The http://www.brlsiyouthgallery.org website was introduced and demonstrated as a source of resources and communication between meetings and how they could email questions and enquiries. Because of child protection issues young researchers and supervisors were not allowed to email each other directly. They were shown how to email a generic email address - coolbookings@brlsi.org - with 'BRLSI Young Science Researcher' in the subject line so it could be easily identified and passed anonymously to the person who might answer it or posted on the site for all to respond to. Ideas about the feasibility and appropriateness of other sources of support and knowledge, such as family, were shared.

The session concluded by 'planning ahead', with participants completing as best they could the planning sheets, agreeing the format for each future session: 1. Review what has been done; 2. What needs to be done; 3. What skills need to be learned/practiced; 4. What support/equipment is needed over the next month; 5. Any suggestions for next time and completing feedback sheets.

Session 2 - 13th Dec 2014

In planning the second session we took what we had learned from session 1, continuing to give attention to enabling the young people to gain confidence to talk about their research and contribute and benefit from conversations in small groups, revisit what they had done before by referring to their research files, introduce a research skill in a fun and active way and enable them to work with their research group to progress their research. We decided that the research skills we wanted to focus their attention on were those they possibly thought they already knew and took for granted – the skills of observation and recording. We wanted to keep a connection between the fun activity and real research so Paul S suggested using bricks, as the common theme was the built environment, and he could provide bricks used in a real research project on the thermal performance of historic masonry.

An observation sheet (Appendix 2a) was developed for use with the hands on activity, as was a review sheet (Appendix 2b) for encouraging reflections on learning, a planning sheet (Appendix 2c) for the period of Christmas and New Year and also for the way in which the participants will present what they have done at the beginning of the third session. Feedback sheets (Appendix 2di and 2dii) for the supervisors and the young researchers were used again.

After a brief introduction to the second session we moved on to a catch-up 'icebreaker' in supervision groups. As they would do in a real research group each participant was invited to talk briefly about anything interesting they had found out during the preceding month, what they had done on their research, and what their expectations were for the session.

Figure 4 Learning to work with other members of supervisory groups

The supervisors were also expected to take their turn and to facilitate the group so everyone had a chance to speak, to be listened to and to listen to others. There were a number of purposes for this activity: to give an opportunity for the young researchers to develop their confidence in speaking; to hear their own voice, and to realise that they are active contributors to their own learning and the learning of others. Time was spent in the supervision groups discussing in detail the individual projects and helping each young person, drawing on their notes in their research file, to begin to form a solid idea of what they might like to research and what that might practically involve. The supervisors facilitated the discussions and contributed drawing on their knowledge of scoping a research programme and experiment design.

We wanted each participant to feel part of the whole project as well as their supervisory group so we rearranged the room to enable us to sit round a single table where each researcher and supervisor were encouraged to talk for just a minute to the entire group about their project and expectations.

After a short break we changed the form of activity to demonstrate the importance of observation and recording as research skills and practice them

Figure 5 Young researcher learning to notice and record

Each young researcher and supervisor was given a small brick from a real research project, an observation sheet (Appendix 2a) and 10 minutes to record what they noticed about their brick and the context within which their observations were made.

Figure 6 Supervisor as co-learner

Supervisors took part in the activity as co-learners revisiting research skills they were familiar with.

All the bricks were then gathered together and mixed up and observation sheets swapped around. Each person had to find the brick described on the sheet they had been given, and add new observations to the sheet that may have been missed. Most easily identified the brick to fit the description but two were convinced that one brick was theirs. This helped to illustrate how important, and at times difficult, it is to observe and record in sufficient detail.

The whole group discussed the similarities and differences in what was recorded and what helped them to find the 'right' brick. We discussed subjectivity, the difficulty and need to observe carefully and record precisely, and we learned to

Figure 8 Learning to work together

Figure 8 Learning to reflect and record

not just 'see' but to 'notice'. We shared ideas about different ways of recording and the importance of clarity in written and general communication. Some just used words, some made sketches, some included measurements. Someone suggested they could take a photo using their phone although interestingly no one did.

Each researcher completed the 'what I have learned' sheet as a reflective device and to serve later as an aide memoire.

The supervisory groups were reconstituted for the young researchers, working with their group and supervisor, to revisit and revise their research plans and to decide how to spend the coming month developing their research. Supervisors facilitated the groups and provided guidance, advice and suggestions.

The last few minutes were spent introducing the online forum for asking questions, share individual hopes for next time and completing feedback sheets.

Session 3 - 10th Jan 2015

When we planned the third session we were told that a couple of young researchers (brothers) had dropped out of the programme. We decided to bring this situation to the fore, as it is a real issue for many research groups in universities and business. A research or project group is more than just a collection of self-serving individuals. Each person's presence contributes something unique and the whole, the group, is truly more than simply a sum of its parts. Individuals have a responsibility to contribute to, as well as benefitting from, other people's learning as well as their own. We wanted to show that by foregrounding problems in a nonjudgmental way, productive and mutually satisfying ways forward can emerge. We decided on a post-it activity as this would enable everyone to 'have their say' and learn what other people were thinking without identifying themselves, which might make them feel more confident to be 'honest' rather than saying what they think other people might want to hear.

EXAMPLES of what was written We tried to show how everyone had different objectives but they were aligned and mutually compatible.

We wanted to build on the observation and recording skills introduced in session 2 by introducing the importance of developing communication skills as a researcher. As the first part of the session might be quite intense we wanted to do this in a light-hearted but still productive way. We decided on an activity used to develop language skills and instead of writing they would be asked to draw a picture that only their partner could see. Again the materials were chosen to

have some relationship with the build environment to encourage the connection between an abstract activity with something 'real'.

Finally we wanted to make sure we gave time for the young researchers to work with their supervisors and research group to work on their research.

When we began session 3 our decision to address the issue of missing members proved to be even more appropriate as our company was smaller than anticipated. After the initial welcome we told the group that two young researchers had withdrawn and how we wanted to identify what problems there were for members of the project and find joint solutions.

The activity we used consisted of asking each person to write on post-it notes why they were involved in the project and/or what they hoped to get out of it. They were to write one thought per note and stick them up on the wall. The notes were to be anonymous and they could write as many or as few as they wanted. When everyone had done we asked that they look at all the post-its and discuss, negotiate and come to an agreement with others about how to group the post-its. As a whole group we looked at the groupings, the overlaps and differences and discussed how we might try to make each one happen. We made the point that in real research groups, students and supervisors have different payoffs which could be mutually compatible and discussed individual and group social responsibilities to the project and the members.

After a break we used a light-hearted activity to extend the communication skills we had introduced in session 2 and relate that to the shared responsibility of listener and speaker to improve the clarity of understanding and description. Everyone, supervisors and young researchers, participated as equals. They found someone to work with and were sat in pairs back to back. One person in each pair was given a picture (Build Environment Research themed), which they had to keep hidden and describe to their partner verbally what it looked like so the other could draw it accurately. They were told the 'drawer' could ask questions and once, 5mins-in, could show their sketch to the 'describer' so they can see where the 'drawer' was going wrong and try help them correct it. It was made clear that success would come from the shared responsibility of describer and drawer for clarifying the communication and it was the pair's performance that would be judged. Roles were swapped and the exercise was repeated using a different picture so everyone had chance to draw and have a sketch to put in their portfolios.

Image of Picture and sketch? I think Paul S has these, although I have subsequently adapted this to use in 'hands on' workshops

The whole group was then brought together to discuss how they got on, how they felt, what helped and what didn't. In the discussion we pointed to how listening is an active process requiring concentration, how the use of questions is crucial and that we can learn from another's questions, even when they have limited knowledge of the subject. Each participant was encouraged to fill in a 'what I have learned' sheet as an opportunity to reflect on what they had learned

about listening and communication to consolidate and extend what they had learned.

Example? I think Nicola has a fairly full portfolio. Shall I ask her to drop it off so we can copy appropriate examples or do you want a wide range.

The supervision groups were then formed for the young people to update their group on their progress during the previous month, identify any problems/needs and help each other to move forward. We wanted to extend their confidence and ability to work in a larger research group so we drew the group together and each person was given the opportunity to report to the whole group what they were working on – but to make that step easier they were first asked to talk with the person next to them, who was not in the supervisor group, and if they didn't feel confident enough to then talk to the whole group their partner or supervisor could help them or talk for them. This afforded the supervisors and opportunity to build on their experience of 'how to explain to a lay person' from previous sessions.

The last half hour was spent in supervisory group with young people working on their planning sheets to formulate how to spend the coming month. They developed their research through questioning from the rest of the group who were encouraged to ask questions and listen; applying and extending the skills they had focused on in the activity. The supervisors provided further guidance, advice and suggestions. The young researchers were told how they could apply for resource and equipment as 'real' researchers have to.

Following the session one of the young researchers applied for and was granted equipment. We also discovered why attendance was low – a mother's email explained they thought – '… it was restarting in Feb.' As a consequence a reminder email was sent out the week prior to each subsequent session.

Session 4 - 14th Feb 2015

In planning this session we were aware that the end of the project was approaching and we needed to clarify the form of communication that would be suitable for the young researchers to make public the knowledge they had created in the course of their research. We originally thought of the young researchers writing research papers but now thought this was far too challenging. An academic poster seemed to present an appropriate vehicle that would enable the young researchers to continue develop the skills of 'real' researchers and also allowed the supervisors to communicate their educational learning journey. We also wanted to build on the research skills introduced before and learning to create an academic poster presented a different and fun activity that would help the young researchers to progress their critical and creative thinking and research.

This session saw a major change. As the young people began arriving they were encouraged to find their supervisor and begin a catchup with them. One young

researcher loaded up photos he had taken round Bath for his research on the only computer available to show his supervisor. It was attached to the digital projector, which meant his work appeared on the main screen. He was asked if he would be willing to share his catch-up with the whole group. He agreed. This seemed an opportunity to encourage all the young researchers to step out of the comfort of their supervision groups and begin to practice sharing their research with a larger group. To ensure no one was put in a position they were not ready for they were asked individually whether they would share what they had been doing with the whole group. The all agreed. So when everyone had arrived the room was rearranged and each young researcher and supervisor shared with the whole group what they had been working on and they were all encouraged to ask questions as they would in a 'real' research group. This was the first time the young researchers had shared their research with whole group in this way.

Videos play list https://youtu.be/nGL4B_rtaSk?list=PLUAuUrjrSdqY-1mD8Mx92yAzxF4UB24NQ

The presentations served to extend and value the voice of the young people as researchers and provided an opportunity for them to learn from each other and integrate ideas into their own research plans. We freed up time in the afternoon by adjusting the timing and deleting a planned activity. We went into supervisor groups for the young people to talk in more detail about their research, problems encountered and begin to formulate possible solutions. Supervisors facilitated and reminded them to practice the listening and communication skills developed during previous sessions.

After a short break Paul S presented, 'How to make a poster', focusing on how to communicate research, capture attention but keep the science. The PowerPoint was uploaded to the website later for reference. Everyone was given a rubric (Appendix 4) for evaluating a number of the real academic posters arranged around the room and one minute to appraise each poster. Notes were compared in supervisor groups and across the whole group and the key points were taken into the next activity, which was to get each researcher to begin to sketch out their poster.

Everyone was given a blank A0 sheet to sketch out his or her individual or group poster. They were reminded to think of the layout, key message and how they might report results as discussed during the initial presentation. The main aim was to get the young people to make their first mark on a big sheet of paper to feel confident enough to take the sheets home to finish (in draft) over the next month.

They then returned to complete planning sheets in their supervision groups to outline how to spend the coming month developing their individual research with the supervisor's guidance, advice and suggestions. Feedback sheets were completed and everyone departed clutching A0 rolls of paper for continuing to work on drafting their posters.

Session 5 - 14th March 2015

Developing the confidence to talk about your research and consider the implications of new thinking that can arise from questioning is an important skill for researchers to develop. In planning the fifth session we wanted to give plenty of time for the young researchers to build on what they had done previously when learning to address the whole group. With the mini conference rapidly approaching we had to give plenty of time for the young researchers to focus with their research group and supervisors on the progress of their research and what was needed to ensure they were able to present what they had learned and what they would need to do to prepare their posters in an electronic form that could be printed. There was also the opportunity for the young researchers to talk about their research and the project to members of the public at the Bath Taps into Science event. So this also needed to be given time.

As the young people arrived they went to their supervisor group. When everyone had arrived we reorganized the room so they could update the whole group. All the young researchers and the supervisors shared the progress they had made during the last month, including showing the current state of their draft poster. They were much more confident both to talk about their progress to the whole group and to ask one another questions to help.

After everyone had presented supervision groups were formed for a detailed catch-up to resolve outstanding issues.

After the break the whole group came together to focus on the Bath Taps into Science event. We explained what it was and gave a brief history to give a context. We then discussed what they wanted to get out of Bath Taps individually and as members of the project and the opportunity it offered:

- To show off the BRLSI Project itself;
- For individuals to show off their own research;
- To do some actual research (questionnaires, live testing).

We showed them the table and display boards that would be available in the marquis and discussed how to use the space. Moving on to the practicalities of who could attend, when and a rough plan for the day.

After a break the focus was on planning for the April mini conference and explaining the logistics of preparing an electronic version of an academic poster for printing. Work on the posters went on in the supervision groups, resolving research problems and completing the planning sheets. In the final whole group activity participants shared what they were intending to do for the Bath Taps event, when they would be at the event, what they needed to do in preparation for the April mini conference and completed the feedback sheets. This was a way of reaffirming their commitment to the Bath Taps event and the programme as a whole.

One of the young researchers subsequently had set up a twitter account, @#BathBlackCrust, and used the forum to talk with this supervisor and created a PowerPoint for displaying at the Bath Taps event. Others prepared more questionnaires to give to the public at the event.

Bath Taps into Science - 21st March 2015

Bath Taps began in the early 2000s as a BRLSI initiative organised by BRLSI members who were also members of staff at the University of Bath and in conjunction with the Bristol Branch of the (then) British Association for the Advancement of Science. In the early days it was hosted by BRLSI. As time went on the Bristol Branch of the British Association felt it was more appropriate for Bathonians to be responsible for its own festival of science. Staff at the University of Bath, in particular members of the Maths and Physics departments, took on greater responsibility. For the last few years it has bee seen as a University of Bath event, sponsored, organised and hosted by the University. BRLSI has one or two stands and BRLSI members help as volunteers, side by side with University staff, students, STEM Ambassadors and the University Public Engagement Unit.

Six young researchers, together with two supervisors, designed and staffed a stall, which was part of the BRLSI stand, during the Bath Taps into Science event in Victoria Park, Bath. Those who could not attend sent in photographs and text so they were represented. Helen Featherstone (who had attended one of the BRSLI sessions) and Ed Stevens of the Public Engagement Unit of the University of Bath, who had provided funding for the programme, visited the stall in support.

Two groups used the opportunity to survey members of the public to capture more information, using two sets of questionnaires. The young researchers were responsible for devising and designing a tabletop display with examples and photographs of their work and working sessions. They were also available at the stall to engage with members of the public to discuss the programme and to encourage other teenagers to consider joining the programme in 2015 – 2016.

Nearly 2,000 members of the public attended the day and many visited the stall.

Figure 9 The Bath Taps BRLSI Researchers stall

The young researchers and supervisors fielded the queries and demonstrated their work using their display while staffing the stall. This was a truly confidence boosting exercise enabling both to talk about their research to a lay audience and practise their presentation skills.

Figure 10 Bath Taps gathering data


Figure 11 Communicating with the public

Two of the research groups used the opportunity to roam the marquee soliciting responses for their research through questionnaires. Some took the opportunity to learn more from other people with stalls in the tent, for instance about designing a questionnaire and communicating their research to the public. Over 100 contacts were made in this way.

Session 6 - 11th April 2015

The April session fell during the Easter holiday but it was decided not to change the date, as it was inevitable that no date would suit everyone. The problem of clashes with young researcher's family holidays and other activities, such as Ten Tors, was a continual problem. We tried hard to show the young people that they could continue with their research and be part of the programme even if they had to miss sessions but there doesn't seem to be an answer and some young people didn't return if they missed two sessions in a row. As it was on this occasion not only were some young people unable to attend but two of the supervisors and one of the project leaders were also unable to attend for very pressing family reasons, which could not have been anticipated. This offered an opportunity for each person to overtly recognise that they contribute not only to their own learning but also to the learning of others.

The session was devoted to ensuring the young researchers were prepared to present their research at the mini conference in May. The email sent round prior to the session asked them to bring a laptop if they had one, or their poster file on a memory stick if not. A spare laptop was available in the room.

We started the session by telling the group how we were going to help one another to prepare for the mini-conference at which they would be presenting their research to an audience of family and friends. They were told about the deadline for electronic copies of the posters, so they could be printed in time for the mini conference. Most of the afternoon was given over to the young researchers working on their posters with their supervisors help. A couple of groups were combined where a supervisor was absent. Where a member of a research team was absent the poster was developed so that should the absent

member provide a poster it could be added to that of the rest of the group, but if not, the poster produced could stand alone.

We had a debrief of the Bath Taps experience and shared reflections on what had been learned. The young researchers felt they had got a lot from the experience, learning to talk about their research, getting ideas on how to improve their research and gathering data, and how to cope with over a hundred questionnaires!

The young people then worked on their posters and presentations with their supervisors and we went round the laptops to see what each had done and share ideas on how to improve them. That way they could learn not just from what they were doing but also from what others were doing too and coming up with thoughts of what might improve someone else's poster.

Many of the young researchers had not begun their poster, so most of the afternoon was given over to helping them get as far as possible so that they knew how to continue at home over the coming. We talked about the mini-conference, agreed the order of presentations, (the young researchers decided they preferred the supervisors to go first) and shared thoughts about what might be helpful to keep in mind when presenting. The deadline for getting posters sent in electronically was repeated and they were told if they were stuck not to worry but to tell us and we would help. They completed the feedback forms and away they went.

Mini conference 9th May 2015

Prior to the mini conference an invitation was sent to the families of the young researchers. The intention was to make the event a like a real academic conference as possible so timings were strictly held to.

The programme for the afternoon:

1pm Briefing and preparations
1:25pm Visitors arrive
1:30pm Opening keynotes: Paul T, Paul S, Marie.
1:45pm Supervisor presentations
2:30pm Comfort break
2:45pm Young researcher presentations
3:30pm Plenary with audience, closing ceremony and photographs

(After the conference we gathered quickly for debriefing and to share preliminary thoughts about publication, conference at the University and next phase of the project.)

Researchers had three minutes each to present their poster with five minutes afterwards for questions. Paul S kept us all very strictly to time.

Figure 12 The mini conference is opened

Paul T, Paul S and Marie opened the conference
https://youtu.be/i0M35Cm14fo

The supervisors then presented what they had learned through the project.

Figure 13 Ammar presents https://youtu.be/rciB065zRck

Figure 14 Joe presents https://youtu.be/gh4TPcEewsI

Figure 15 Giovanni presents https://youtu.be/RymzYmHA80g

Figure 16 Teresa presents https://youtu.be/25nSk3nTQZo

Figure 17 Muzzamil presents https://youtu.be/r1cTerLVT4c

Then the break when young researchers talked with their supervisors and with the audience about their posters

Figure 18 Enjoying the moment

Figure 20 Talking about their poster

Figure 19 Sharing a thought

Then the young people presented their research

Figure 21 Molly and Mari present https://youtu.be/t_JfruwBdjc

Figure 22 Barnabas presents https://youtu.be/fNGfTWej6TU

Figure 23 Kitty and Nichola (with Georgia in absentia) presents https://youtu.be/-nCUpNVIMOU

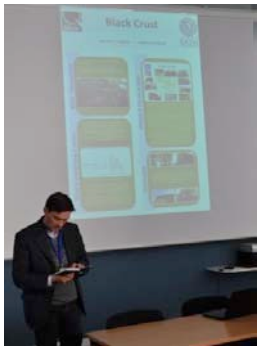

Figure 24 James' research presented by his supervisor https://youtu.be/btUofXTgjuc

James' research was presented on his behalf by his supervisor, Giovanni, as James was on the Ten Tors.

The conference concluded with a conversation with the audience, comprising family and friends of the researchers and a group photograph. The key point that emerged was the importance of parents, family and other adults support for young researchers and the need to brief them on the programme as it is very unlike school.

Figure 25 The mini conference photo!