Fallibroome Academy Case Study: Endless Journeys

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Context

The Fallibroome Academy is a high achieving school of 1500 students. It provides a dynamic set of curriculum opportunities for pupils aged between 11 - 18. The Fallibroome Academy is a Specialist Performing Arts College, Leading Edge, Training School and National Support School, and has also recently been designated as a Teaching School.

The music department at the school has recently joined together in partnership with other local schools to form the Love Music Charitable Trust, a hub funded by Arts Council England charged with delivering music education across Cheshire East. The school has a strong heritage of performance and music technology with two computer suites, a recording studio, several breakout spaces and a 500 seat performance hall.

People

Phil has worked as a Music teacher at The Fallibroome Academy for 2 years. He has been involved with music all his life, studying first at the Wells Cathedral School before moving on to the renowned joint course run by Manchester University and the Royal Northern College of Music. He is primarily a french horn player, but studied composition at university. One of his final submissions was published by Bobaton.

Duncan is a freelance composer and musician based in Lincoln. Most of his work is concerned with creating new music often in educational contexts. He is particularly interested in working with live electronics and technology in tangential ways and creating music and sound works that exist as performances, recordings, installations and on the web. He is currently working for Spitalfields Music, The Royal Opera House, writing a symphony for the LMP with 3 community groups in South Lincolnshire, and curating a new music performance and installation in a 360º cinema for the cultural olympiad in Weymouth.

Jonathan is a Reader in Education at the Faculty of Education, Manchester Metropolitan University. He has a particular interest in the use of technology in music education following on from his own PhD studies at the University of East Anglia. This work examined the compositional practices of electroacoustic composers and sought to translate them into meaningful pedagogies for teaching music in the secondary school. The resulting projects, such as *Dunwich Revisited* and *Reflecting Others* (Savage & Challis 2001, 2002) were published through a research methodology of action research and case study.

Research Question

The research question that the project started with was:

How can ICT in the classroom encourage the use of creative and experimental thinking?

In our early discussions this question was discussed extensively. Using a range of literature, including Bowers (2002) and Savage (2010), we discussed what we considered creative and experimental thinking might be. We also wondered what was meant by the term 'ICT' which does, it seems, have a range of interpretations within music education. To assist our thinking, we debated a number of alternative questions along the way, including:

- How can technology be used to help pupils construct or imagine new ways of thinking about their compositional practice, both individually and collectively?
- How can technology be integrated or relocated alongside more traditional approaches to musical performance in the classroom?
- How can technology help refine the process of composition in the classroom and allow opportunities for pupils to enjoy the compositional process more fully?

However, following further consultation with Judith (Sound & Music), we agreed to return to the original question and use this as a focus for our work.

Research Methodology and Methods

This has been described as a piece of action research. In our experience, 'action research' is a catch-all term but, as far as we understand this, it centres around the work of a practitioner who, normally, has to work through several phases of a research spiral (Elliott 1991). The final phase of each 'spiral' results in actions being implemented in practice and being investigated further in the following spiral.

This project was a piece of action research in the sense that it involved practitioners identifying a question, designing an investigation of this question through a piece of curriculum development, and reflecting deeply on it from various perspectives. However, the project did not undertake more than one iterative spiral in the classical form expected by a piece of action research. The research was also supported by an external observer (Jonathan) who was able to discuss the work at various stages with the teacher (Phil) and composer (Duncan), as well as make structured observations, conduct interviews with pupils and prompt thinking through the use of selected pieces of literature at key moments.

Specific research methods included:

1. Keeping a shared journal of the project using a Google document. This contained reflections on the part of the teacher, composer and 'researcher'. It became a key piece of data with observational/descriptive data, reflective thinking and analysis (an example entry from the journal is included below as Appendix A);
2. Capturing the pupil voice using various, established systems in place at the school. Some of these are part of the school's VLE; others will utilise video technologies (e.g. talking heads) and will build on approaches that pupils are familiar with. Examples of these are included in Appendix B;
3. Interviews conducted with the composer, by telephone, and the teacher with a focus group (of pupils) in person at Fallibroome Academy. These were completed during the 19th - 20th June 2012.

Description

Early discussions in the project resulted in the choice of a title: *Endless Journeys.* This seemed to reflect the project at several levels, i.e. we were all on a journey of discovery within the project, we were not entirely sure where we are going or where we would end up. There was a deliberate openness to this that we all agreed suited the new approaches to creative and experiential composition with technology within the project. This contrasts strongly with conventional approaches to the teaching of musical composition in schools, which are often far from open. At Key Stages 3 and 4 it is often heavily classified and framed within specific musical styles or for particular assessment purposes (Fautley & Savage 2011; Savage & Fautley 2010).

Within this project, composing was conceptualised as a journey of discovery that does not tell us in advance where, or whether, it will end. But, we hoped, the journey would be exciting. This philosophical stance gave the project lots of opportunities for open ended exploration and thinking about journeys without maps. It reflects the work of several composers, including Dallas Simpson (http://www.dallassimpson.com/), who like to go somewhere new and explore it by listening, recording and analysing sonic environments in a naturalistic way.

In contrast to these philosophical considerations regarding the desire to keep the musical compositional process open, there was a contrasting pedagogical discussion about the need for a final end product of some sort. This, it was thought, would provide focus and motivation for the students working within the project. Many options were discussed, but the opportunity to create a number of short musical pieces for a concert in early July was felt to be the best way forward. On a pedagogical level, this would give pupils something to work towards; on conceptual, musicological and technological levels, the live performance of musical pieces inspired by and through technology seemed highly appropriate and meaningful.

As we will see below, the decision to link the compositional work done by pupils (in the classroom) with a live performance event (the concert) had some important consequences for the particular tools (technologies) used within the project.

These ideas were discussed with the pupils during the early sessions. Video montages were created by Phil to set the scene, drawing on a range of materials including:

http://www.youtube.com/watch?v=PLQF-4uyD4Y&feature=fvsr
http://www.youtube.com/watch?v=5NlVttFRPpU&feature=relmfu
http://www.youtube.com/watch?v=0zkvqdw_r4A
http://www.youtube.com/watch?v=1fzT6ifrhL8
http://www.youtube.com/watch?v=1twEqcVPGT8
http://www.youtube.com/watch?v=sa7Vco0xyKc
http://www.youtube.com/watch?v=Fjj_sGlpC9U

During the following six sessions, a range of ways of working were established centred around three specific pieces of technology or musical ideas.

1. Looping, Delays and Echoes

Linked to a simple Max MSP patch on a laptop computer, a microphone was used to 'gather' sounds from the the class. Pupils used their own instruments or voices to generate sounds when 'requested' by the 'conductor' (the pupil with the microphone). The MSP patch captured the sound and repeated it for a few seconds with a gradual fade. An improvised musical piece

was constructed over time by the group with specific decisions about musical elements (pitch of notes, their duration, volume, etc) left to individual pupils whilst the overall shape of the piece was discussed and agreed by the class.

2. Sound Plant

SoundPlant is a freeware tool that turns a computer keyboard into a triggering device for pre-recorded audio samples. These can be manipulated in various ways. Within the project, it was used as a tool for individual composition work. Pupils were encouraged to us a piece of pre-recorded audio (from the first session) as a basis for their own interpretations of the Endless Journey theme.

3. Speaker Twitching

Speaker twitching involved pupils assembling a basic electronic circuit of their own including paperclips and a speaker. When assembled correctly, the paperclip can be used to touch the speaker cone, producing a range of sounds.

These three approaches were chosen because they present alternative models of working with and thinking about technology as a compositional tool.

Looping, delays and echoes 'musicalise' what you play into them; seemingly random sounds are combined and through the repetition this creates a sense of flow and purpose. Duncan has found that this can be a very powerful tool for empowering the timid. Also, as the echo gives two very different types of sound texture (very rhythmic patterns from short sounds and long drones or sustained sounds from sounds that are longer than the loop length) it is a way of introducing and stimulating critical listening through asking specific questions such as "What did you notice ?".

Soundplant is a quick and easy way of getting people to rethink how they might use the computer as a performance tool. Soundplant has a very shallow learning curve (unlike many of the other software applications available) and provides a "blank sheet" (like Word, Photoshop or Audacity) that does not suggest a specific type of music that you can make with it.

Speaker twitching was chosen because we wanted to stress a sense of exploration, the idea that one can find interesting sounds in the most unlikely of places (Cage's quote "Beauty is underfoot wherever we take the trouble to look" comes to mind). It is also a fun activity, very hands on, and challenges the idea that technology is always complicated and 'virtual'.

Each of the six sessions contained various blends of these three activities. As the following section will show, through formal observations and discussions following sessions a number of key points arose that have informed the findings and recommendations.

Discussion

Throughout the project, numerous points of interest have been identified and discussed. As many of these presented themselves on numerous occasions and in various ways, rather than

try and present a chronological account of them they are discussed under a number of headings below. These headings have emerged through a basic thematic analysis of the online journal that was kept by the participants and a consideration of the interview data collected throughout the project. The headings are not presented in order of importance or priority.

Student Engagement

Student engagement was positive throughout the project. Students felt that the work completed during the project was considerably different from their standard music education experience within the school. They valued the freedom and openness to explore sound in new ways. The following extract from the journal provides evidence of this from the very beginning of the students' work:

> Students were engaged throughout, and the emphasis was very much on exploration and discovery rather than product. It was good to see students discover and then create new sounds with the speaker twitching, and apply musical thought to those sounds naturally...they were much more creative than I had imagined, and as there was no instrument to worry about, I felt this aided their creativity compared to some of our existing schemes of work. (Phil, journal entry, 19/1/12)

In more conventional activities such as those represented in Appendix A, students enjoyed using their musical instruments in new ways within a group musical composition task. At points, the pace of the activity was slow as Duncan facilitated detailed conversations about the compositional choices being made by the group. From the outside, these moments seemed 'conversation-heavy' compared with traditional music teaching; however, student engagement in these moments was generally very focused.

Integration of Conventional Musical Instruments with Digital Technologies

As the above point illustrates, many of the digital technologies employed during the project were used alongside students' conventional musical instruments. Students enjoyed being able to link their work together in this way. For some, getting the opportunity to improvise with their instruments (within the microphone/Max MSP activities) was challenging but rewarding. One particular student, Zarin, who is one of the more gifted instrumentalists in the group had a particularly interesting journey through the project. At the start of the year she found it difficult to even play a note on her violin unless there was sheet music in front of her, but through questioning, support and a clear 'road map', Zarin was able to step out of her comfort zone, and, by the end of the sessions was comfortable improvising and developing motifs, as well as being considerably more open to more abstract concepts such as speaker twitching.

Students' perception of their instrument and how they learn it provided a useful backdrop to the work of the project. On a number of occasions, both Duncan and Phil were able to draw on technical issues related to learning an instrument to help facilitate a discourse about a new technological tool. For example, in interview Jodie commented about the learning process she engaged in within the speaker twitching activities. The fragility of this was usefully exemplified by Phil in relation to issues of changing embouchure, something that Jodie had worked hard at during her last year of learning the trumpet.

Uniting Composition and Performance Processes

Soundplant proved to be a fantastic tool in encouraging students to think about musical composition and performance in an integrated manner. The following extract from Phil's entry (in the second month of the project) provides evidence of this, as well as highlighting a number of potential 'issues' with the software:

> Soundplant worked well as a tool and should definitely be explored further as this is a useful way to create a finished product as well as exploring the process of composing. I used a .wav file recorded in previous session and students experimented with trying to create a piece for Endless Journeys. Software worked well although preserving work was a challenge. There was a debate as to whether pieces needed to be notated to preserve them and discussion about different forms of notation - e.g. using the computer keyboard to write story and then playing it, playing the keyboard with rhythms and notating that somehow, etc. Older students were used in a mentoring role, helping out with software issues, encouraging sound exploration and structuring pieces. Students are now comfortable using the software and generally with creating their own sound vocabulary, however they need more help to focus their ideas into a piece. Writing frames may be useful, as well as a solution for preserving pieces. Do pieces need to be the same each time they are performed? (Phil, 8/2/12)

Within a relatively short period, students had assimilated the tool and begun to consider its potential and affordance within a specific task. It was at this point that Phil was also having to think hard about supporting these more complex applications of the software tool through a more scaffolded pedagogical approach. During a session in between Duncan's visits, the class considered the idea of a score being used to structure and guide both audience, composer and performer. Phil discussed how audience members would feel watching a laptop performer, asking questions such as "How can you tell if a laptop is being played with expression?" The students felt that there needed to be a visual element to the performance and a score could therefore act as a signpost to both performer and audience as well as provide a more structured process to the composer. Some examples of the scores that the pupils produced are provided in Appendix C.

However, it is notable that students were also quickly able to imagine the use of the technology in the context of a live performance setting. This is fairly unique in our experience. Often, music technologies are complex and require a longer period of sustained engagement before students are confident and make the conceptual leap required to imagine a new form of performance practice. Here, this 'leap' was made in a few sessions.

Structure and Freedom in Compositional Activities

There was a general agreement throughout the project that freedom is important to the process of musical composition, hence the metaphor of *Endless Journeys*. We were all agreed that shutting down creative opportunities too early in a task was not desirable. Balanced against this viewpoint, are a number of pragmatic issues. From the perspective of the teacher, time with students is valuable and needs to be maximised. The broader framework of curriculum and accountability mechanisms within the school also exert pressures on music teachers.

From the students' perspective, there was a general view that they felt comfortable and motivated when there was a general sense of direction within a session. In interview, the openness of these sessions compared to traditional musical lessons was noted and

appreciated. However, students also expressed a strong view that an end product for their learning is important. They were keen to know how their compositional ideas and approaches were going to be harnessed and presented in a final form (in this case, the concert).

For example, in the extract from the journal presented in Appendix A, although the questions that Duncan asks move the process forward each time, sometimes students struggle to imagine different ways forward. The overall feel of the discussion can lurch from one direction to another quickly. One student feels that things move on too quickly and that you need to reduce things down a bit. Another hears things differently and wants to move things in a different direction. These potential conflicts were carefully managed by Duncan and students were encouraged to consider 'the other' in the ensuing dialogue. So, this freedom could have felt overwhelming on occasions. When there is no 'right' or 'wrong', do pupils feel disempowered completely? In this scenario, is just asking more questions a helpful pedagogy?

In this example, ultimately Duncan asserted control over this process. At a specific moment, he appoints Ted (saxophone) to take control over this part of the piece. So, it is clearly legitimate for teachers and composers to make decisions on behalf of students for the benefit of the collective whole. The criteria for these decisions need to be communicated clearly to students. Although there is no such thing as 'total' freedom in a composition task, the discourses that these compositional activities facilitates is where the real learning is. We are sure that students will remember these long after the project has ended.

The beneficial ways of working that such discourses facilitate have been noted in other areas of the students' work outside of the project itself. Phil has commented on this in respect of their music making in general curriculum classes. During music classes he has noticed a significant change in the approach of students towards tasks. They work more quickly and take more risks, often without his direction. For example, James (guitarist), whilst being a competent player, had formerly been quite shy during group work. But during a recent film music composition task he was able to lead his peers in producing a successful composition. He taught them about structure, motif development, creating mood and successfully applied the processes mentioned above.

From the composer's viewpoint, Duncan adopts a pedagogical strategy of skilful intervention. Students will demonstrate many different types of response; here, students were generally engaged and embraced the opportunities. But, in interview, Ted was uncertain that other members of his form group might have been so accommodating.

Presenting the Unfamiliar

The opportunity to present the outcomes of the project in a public concert was generally perceived as being a positive thing. However, students expressed concerns about how an audience would receive unfamiliar sounds produced in unconventional ways. This led to numerous discussions about the performance practice of electroacoustic music. Various examples of pieces were explored (and performed) within sessions but, perhaps most impressively, students were particularly experimental and inventive in the presentation of their own musical pieces using Soundplant.

One of the things Duncan did was to present the composition work being developed within the project in a wider context in an attempt to broaden students' minds about different forms of compositional process and product. For example, the speaker twitching was very much inspired

by the work of John Bowers (2002) and workshops Duncan had attended with Nic Collins (2006). On several occasions throughout the project, Duncan played examples of his own work and other repertoire. When notation was discussed, Duncan used examples including Ligeti's *Volumina* , traditional Japanese shakuhachi notation and the score of a piece he had made with other students for a soundplant orchestra (in the form of a list of instructions) . This allowed students to explore the whole idea of what notation is for, notably whether it is a set of instructions for actions (as in guitar tablature or shakuhachi notation) or a graphical depiction of what the music might sound like (as in 'conventional' notation, or the score of *Volumina*). All of this was intended to get students to think about what one might call 'appropriate' notation and answering the question "What's the best way of presenting this so that I (or someone else) could play it?".

In presenting the unfamiliar, Duncan was also keen to contextualise the students' work within a broader electroacoustic musical tradition. In addition to the above, other composers that we could have looked at in this respect would have been Pauline Oliveros, Morton Subotnick (particularly the 'ghost electronics' pieces) and Stockhausen (particularly the live electronic music *Mikrophonie 1*). However, one piece that was considered in some detail, and which caught the students' attention, was *Waggle Dance* by Nic Collins. This exists as a piece of downloadable software (http://www.nicolascollins.com/software.htm) and is an example of a radical solution to making a group piece with laptops. Whilst discussing this piece with students another interesting discussion of "what is music"? arose, with some students concluding that it became music when it was performed ! As a consequence of these discussions, this piece will be performed in the concert in July.

Metrical Frameworks

The natural, predisposed student obsession with metrical frameworks was noted at various points throughout the project. The focus in many of the compositional activities was on the nature of sound itself, with tempo and rhythm initially taking a less important role. This contrasts strongly with students' wider musical experiences and work within their instrumental learning and classroom music making (which includes approaches that centre around the popular musical styles with which students are most familiar). Is the willingness to work in an unmetrical way (perhaps focussing initially on sounds) a step too far?

Is Musical Performance Valorised at the Expense of Musical Composition?

Music education at Key Stages 3 and 4 is predicated on a holistic model of musical performance and composition, with each being of equal value and being taught in an integrated way. However, in reality, music education often valorises musical performance and the associated skills above those of musical composition. Many teachers have succeeded in music as a result of their performance abilities rather that their experience as composers; many students would describe themselves as musicians on the basis of their musical performance skills; early experiences of music making, e.g. in Wider Opportunities programmes, prioritises musical performance (and instrumental learning) at the expense of a broader range of musical opportunities. At a policy level, music education is now seen as being solely about giving students an opportunity to learn an instrument and sing. The richness of the curriculum model that has underpinned music education in the United Kingdom is in danger of being lost.

For these reasons, it was very encouraging to see a more integrated approach to musical performance and composition within the project. Students were encouraged to use both their own and unfamiliar instruments in new conventional and unconventional ways. Many group activities involved pupils playing their instruments. The products of these group musical performances were used as the basis for further individual composition work using Soundplant. In both ways, composition skills built on their set of conventional performance skills. Within speaker twitching activities, students were working with a new and fragile musical instrument. For some, this proved frustrating. But for others, they quickly grasped some of the potentiality of the interface and were able to envisage a performance practice built around it. The context of the compositional work was more important than a perceived set of composition skills or theoretical knowledge that needed to be acquired in order to succeed.

An Authentic Musical Persona

Personality had a role to play here too. Duncan would not describe himself as a teacher, although he has many teacherly qualities; Phil, although more experienced in composition than many teachers, would describe himself as teacher first, horn player second and composer somewhere further down the list, although he has experience of working as a composer and has received instruction in composition as part of his own degree studies.

There is something important here about the authenticity of these persona. Students did not expect Duncan and Phil to be the same. They enjoyed the different approaches that each entailed. Whilst they are obviously more familiar with the role of 'teacher', Duncan's role as 'composer' was appreciated. Duncan was very good at capturing their imaginations about what this entails in a humorous way. His vegetable orchestra is one such example. However, at a pedagogical level Duncan asks many, many more questions than your average teacher. Students became aware of this early on and got used to their own questions being answered by another one of Duncan's questions! Did they ever know what Duncan really thought? We think they did, but this was through his persona as a composer and a sharing of his own work rather than through him explaining it to them.

For Phil, the experiences he has when I working with students in these situations are very much about creating music rather than simply applying new teaching methods. He reflects:

> I think there is a danger of thinking that there is "Music" and there is "Music Education" , separate from "real" music. I like to think of the school as one of the sites for music to happen. What I am trying to do is to encourage the students to think about music in a wider way. I'm not that concerned that they 'like' a particular genre or piece but it does seem important to me that music continues to be a 'mindful' activity. (Phil, comment on case study, 26/6/12)

The authenticity of these roles is important, both in presentation and perception. Projects like this work best when composers and teachers work collaboratively. Without the pedagogical skills and framework that the teacher brings, the composer's work could end up as simply being an entertaining sideshow. The key question is to what extent is it possible for teachers to 'become' composers any more than we would expect composers to become teachers? Can the dual persona every exist in any meaningful way?

But these reflections on personality also extend to the students too. By the time that students get to secondary school, many have decided whether they are good at music or whether they

can be successful in the subject. Those who have not benefited from private music lessons at times can feel inferior, despite their enthusiasm and motivation to do well. The constructive links between performance and compositional skills and opportunities here is essential. As Phil comments:

> I spend a lot of time in my Y7 lessons emphasising the need to be able to compose music and hear ideas in music as well as performing. This is most noticeable though when it comes to composition activities. Here, personality is everything and instrumental ability loses some value and can normalise classes: those students who are prepared to take a risk will throw themselves into a task and see what comes out, recognising that it doesn't matter if they make mistakes; those students who are more cautious and require structure in their learning really struggle to take a leap themselves and need creativity dragged out of them! However, to create music that is satisfying for them, students can find the lack of instrumental ability a hindrance in creating music that has meaning for them. This has then led to the advent of loop based software which re-enthuses students as they can create music that has more meaning for them, but at the expense of that initial creation of an idea. So you are then stuck with the following conundrum as a teacher...
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> Instrumentalists:
>
> May be able to create 'meaningful' output depending on personality, but can be reluctant to take risk or move away from sheet music. They have the ability but require the step away from the doctrine of playing what is in front of you
>
> Non instrumentalists:
>
> May be able to create meaningful ideas but may not be able to realise them, or may not be able to create ideas as they are inhibited by the lack of instrumental ability. Software may aid motivation to succeed but then reduces the need for the creation of initial ideas.
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> Can composition be effectively taught to such a diverse range of needs? (Phil, journal entry, 8/2/12)

Linking the Collaborative to the Individual

Many of the sessions began with students working collaboratively with Duncan (using looping technologies or playing compositional games) before moving to more individual activities (primarily their Soundplant compositions). It has been interesting to note how students have been able to draw on the lessons learnt from their group experimentations within their own individual work.

Generally, students have shown a high degree of inventiveness in their compositional approaches confirming our view that the project, as a whole, has led to a greater degree of creative and experimental thinking in musical composition. The compositional freedoms illustrated by Duncan's approach to group composition in the classroom has legitimised these approaches in students' minds and allowed them to take more risks and come up with more inventive ideas.

What is Music?

This question was asked on numerous occasions, in different ways, throughout the project. Many interesting discussions were had, often relating to the speaker twitching activities, and Duncan was able to skillfully interrogate students' initial responses and prejudices about what constitutes music. For example, towards the end of one session Duncan shares a piece that he has composed recently. It included samples of a creaking staircase from an elderly gentleman's house in London. Jonathan observed:

> Pupils are curious. They want to know some of the details about how Duncan recorded the sounds? It initiates comments and curiosity. Duncan points to some of the features of composition, including time stretching, looping, pitch changes.
>
> This piece captures the students' imagination. Educating their sonic sensibilities is key here. The majority of students are predisposed and enculturated strongly within certain traditions and styles of music. Alternative approaches are, on occasions, perhaps too far away from their existing sound worlds to make sense. However, having a living example, with an active composer in the room who can, intelligently and provocatively, show them alternative ways of thinking, being, listening and hearing is a major step towards them appreciating a different set of sonic sensibilities. (Jonathan, journal entry, 4/4/12)

Can technology help with this too? Maybe, but perhaps not so powerfully. Technology, like any tool, can become subverted and subjected to pupils' own viewpoints or 'sonic view'. Any tool has this capacity. It takes something more powerful that SoundPlant or a Max MSP patch to shift pupils' musical perception. However, small steps like that illustrated in the above sequence start the process. We wonder whether this can be done by teachers alone? Like all music teaching, the skillfulness, quality, experience and authenticity of a teacher's musical pedagogy will be crucial. This has to be the most powerful influence in a student's musical journey.

All of us agree that the 'thinking about music' that we have all done (students, teachers, composer and researcher alike) on this project is vital. In the dash to learn content within examination specifications, or cover the National Curriculum requirements, students can often miss vital basic concepts. Added to this, we agree that when students really engage with these ideas, as they did at Fallibroome, it becomes very interesting for us all, challenging our assumptions and allowing us all to gain from the experience provided it is managed well.

Developing an Appropriate Pedagogy

As we have noted already, defining an appropriate pedagogy for a project such as this is difficult. It is well known that teachers and composers work in different ways. But given that this project is occurring within a pedagogical frame (loosely contextualised as a 'lesson'), it was interesting to note how specific elements of a pedagogy are interpreted in different ways. In the following extract from an observation on the 23rd May 2012 students were playing a musical game with Duncan that involved playing sounds on particular beats within a gradually diminishing cycle (8 beats, to 7 beats, to 6 beats, etc.):

> *The dialogue that accompanied this activity is constantly revealing. Pupils are encouraged to question everything and seldom give any definitive answers. Questions are often answered with further questions that allows the dialogue to continue. As a result, the whole activity does take a long time. Is this time well spent? Are the links clear enough to the future work being done? How much time should a teacher/composer allow for challenging pupil opinions and seeking to develop them through discussion, musical experiences, contrary approaches, modelling, challenge, etc? Like the previous session,*

when curriculum time is precious teachers have to be able to justify everything (to themselves and to other managers). Are we achieving enough with the time we have here? (Jonathan, journal entry, 23/5/12)

Phil's response to this was interesting. Although the pace was very slow during this activity, he clearly felt that there was much to gain from Duncan's input:

> In some ways this is a small frustration, however, I feel the challenging of opinions is important and the discussion process is important, but I think there was a small drop off in engagement and students wanting to do something more active...it is a difficult balance as on the one hand I wanted students to take as much from Duncan as possible and let him share his experiences. (Phil, journal entry, 24/5/12)

Pace is one of the most subjective elements of pedagogy. Clearly, the sense of pace and the purposefulness of a particular activity exist in a balance that needs to be intuited and 'felt' by the teacher.

Continuing Minus the Composer?

This is crucial. To what extent can approaches adopted within the project continue in the absence of the composer figure. Phil commented that:

> I want this to continue without Duncan but as mentioned above what is the best way to do this...I completely get what has been discussed with regards to viewing Duncan's skills as a way to widen my pedagogy but does this then lose its impact within some schemes of work...e.g. within a musical futures type SoW where students begin projects creating songs (Clocks for example by Coldplay), once they can play it, our schemes add in a composition element...certainly adding in looping and improvisations etc has been done, but currently does not change their sonic sensibilities... My reasons for considering a separate scheme of work I suppose is to take students completely away from the comfort of popular music...the skills acquired by an experimental/low tech/found sounds sort of module could then have significant impact on students during more traditional schemes such as film music, where foley sounds come into play, and then hopefully forward into GCSE where students and teachers then feel empowered to take more risks with the mark schemes, and write genuinely inventive pieces that aren't pastiches of formulaic pop songs and minimalism pieces that will score 30 out of 30!
>
> Is our job to facilitate the development of a individual pupil's musical voice? Succeed in an instrumental exam? Or pass a GCSE? Or all of the above?
>
> Ideally all, but for me, the individual musical voice is the most important aspect...where that becomes challenging is that the majority of students are either "saying (roughly) the same thing with their musical voices" and certainly the go to when composing is chords, bass line, drums and then have an attempt at a melody... (Phil, journal entry, 25/5/12)

Disentangling the impact of the project work on the content of the music curriculum and the pedagogical approaches to teaching music is clearly going to be a major task. Specific schemes of work (e.g. the Musical Futures approach referred to above), carry with them an implicit pedagogical approach that is often under-theorised by teachers and, subsequently, seen in a weak pedagogical frame (Swanwick 1988). However, there are other ways of viewing this.

In relation to the project, it will be important for teachers to interrogate to what extent Duncan's pedagogy is related to the specific musical genres or traditions that he is seeking to engage students with, or whether or not there are generic pedagogical or musical principles here that can be translated across specific curriculum contexts.

More fundamentally, Duncan would challenge conceptions about musical composition as it is presented within the National Curriculum and GCSE specifications. He would argue that what are often conceived of as the rudiments of music are not really what music is about at all! In thinking about music as melody, harmony and rhythm, we ignore the very thing that it is composed of - sound.

Choice of Technology

This project has utilised an unconventional and highly imaginative collection of technology for musical composition. Conventional resources such as Sibelius and Cubase have been cast aside in favour or homemade or open source solutions. This has raised a number of issues that we have considered together.

The fragility of technology has been examined. All technology is prone to failure (often at the most inappropriate time), but in the choice of speaker twitching as an activity there was a deliberate play on the fragility and limitation of the instrument as a spur to musical composition. Even the sense of 'making' the instrument created a considerable literal and metaphorical buzz as the following extract from a session towards the end of the project shows:

> Pupils assemble their speakers (paper clips, wires, speakers and leds). There is a different dynamic in the room when pupils are seated around the table. Teachers are on the outside. They are on the inside. It reminds me of a family meal. Pupils are chatting, passing things around, making stuff and happily preoccupied at first. There is a literal and physical buzz! (Jonathan, observation 23/5/12)

However, at this point Phil seems rightly concerned to focus this activity within a framework appropriate for the final concert. He asks students to think about how a piece could be constructed. But, at this point, the students are preoccupied with the unreliability of the technology itself:

> There are many pupils commenting that it is difficult to produce a sound when asked. Duncan says that this doesn't matter. It is part of the fragility of the technology and you learn to live with it as a performer. I think that this fine point is lost on some of the pupils. Much of their broader musical lives are spent learning to produce, control and refine their instrumental sound and living with uncertainty of this type is probably a step too far. Alongside this, there are problems with the sound itself. How can we make it less like a random collection of sounds and more like a piece of music?

> Early experiments counting in 8. Some can, some can't and this causes further frustration in some. There are issues of control here at various levels, e.g. surrounding the timing of sounds, as there is quite a bit of variability in how the technology responses; linked to this are the individual control issues related to the paper clips – they are fiddly and unreliable, sometimes unresponsive. (Jonathan, observation 23/5/12)

Phil responded to Jonathan's writing about this sequence within the research journal. He felt that he was investing a lot of time and energy for apparently little return:

When it came to talking about creating a piece, student reaction was very adamant that this was not music and this was not something we could turn a piece into. Whilst I felt I had some answers to their objections, essentially I felt I had to sell the idea of speaker twitching as a type of music. It was interesting to see how strong their views were on what music was, but this did deviate us from creating a piece, though maybe this was a necessary process. It was interesting to see students react in similar ways to low ability students in ordinary music lessons, clearly out of their comfort zones. It was at this stage I tried unsuccessfully to input some context for the piece, but the control and engagement wasn't there. (Phil, journal entry 24/5/12)

Returning competence and skillful young instrumentalists back to the beginning in terms of their handling of new instrument was, perhaps, a step too far for the majority. Or, perhaps, the technology was just getting in the way? Duncan's reaction to the same episode was interesting:

It was interesting to observe that the initial reaction to the speaker twitching things is always very positive which to me indicates that there is something in the activity (and the sound) that is an engaging event that makes an interesting performance. The problem is maybe that we are asking them to take a huge leap in their perception of music, some of the time I find this intensely frustrating as surely they have been following the principles of the NC since they started school ? Why is it when I do the same activity with a group of Primary School students and A level students together do they "get it" straight away and start thinking about ways of performing to an audience? I felt Phil was really working hard at this point, some of the less vocal students had more ideas but maybe they weren't coming forward because of the very strong opinions of others? (Duncan, journal entry, 25/5/12)

It was also interesting to note that the fundamental limitations of particular pieces of technology acted to spur students' thinking. There was an interesting discussion early in the project relating to Soundplant and its 'inability' to save a student's work (akin to a, perhaps, a Cubase file). Some students saw this as a limitation although, when challenged about this, they conceived that other 'instruments', e.g. the acoustic guitar, are not expected to remember the piece of music that you played on it.

This incident challenge the prevailing technological narrative that greater complexity and features are necessarily a good thing and part of inherent technological (or educational) progress. Students were made aware that the technology of musical production does both limit and extend our ideas. The challenges that technology brings to the process of musical composition are an intricate component in the creative process. Developing students' appreciation of these issues was an important part of the project.

Key Learning

The five key points that we have learnt through *Endless Journeys* are that:

1. Our main role as teachers of musical composition is to educate our students' sonic sensibilities;
2. The key way to do this is through the design and implementation of authentic, open-ended compositional tasks mediated by appropriate technologies;
3. Whatever technologies are used in the teaching of musical composition, it is important to recognise that they all have particular affordances and limitations;
4. Engaging and educating for the 'unfamiliar' takes time and energy; students will need to be challenged and nurtured in equal measure;
5. As with all music teaching, developing a skillful pedagogy is the absolute key to ensuring the best quality process and product. There is no curriculum development without teacher development.

Key Questions

1. How can students be challenged to unpick their intellectual assumptions about what music is and how it is represented?
2. How can students be encouraged to move outside their own musical comfort zone and current experience as instrumentalists and embrace alternative models of musical composition?
3. How can students' affinity to beat or metrical musical frameworks be ameliorated and re-conceptualised within compositional projects?
4. How can teachers be convinced that homemade or open source technologies are of equal value and similar opportunity to expensive, professional tools?
5. How can teachers and composers forge mutually beneficial collaborations so that the composer does not become a poor version of the good teacher and the teacher is more confident and comfortable with working with composition?

Implications for Practice

1. Link together conventional instruments with digital technologies whenever possible. This allows for students to make connections between what they know and what they are being encouraged to know;
2. Use students' experience as musical performers to frame their emerging experiences as composers; musical performance and composition should be taught in a holistic way whenever possible;
3. Recognise the balance between structure and freedom in a compositional activity and try to ensure the pace of the activity responds to this effectively;
4. Scaffolding and framing a compositional task are important once students have been given time and space to explore it for themselves;
5. Be creative in the choice of digital technologies and make them central to the activities that are undertaken with them.
6. Look for opportunities to collaborate with others within interesting projects. More generally, develop a repertoire of interesting and intriguing compositional approaches for use within your classroom teaching.

Unexpected Outcomes

1. Even making electronic circuits with paperclips and speakers can become a musical activity!
2. Vegetables are musical instruments!
3. The commitment and enthusiasm with which students engage with and explore new ideas. This was not unexpected, but it is a constant source of fascination and delight to us all.

Nuggets

1. Never underestimate your students' abilities to think or hear differently.
2. You don't have to start where students are at. You can challenge their musical prejudices head on.
3. Why not suspend your own judgement about their musical products for a while? You do not need to assess everything in every lesson. Why not enjoy the journey?
4. Developing a skillful pedagogy for musical composition is the most important thing you can do to improve the quality of your students' music education.
5. You can never ask too many questions!

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Appendix A: Sample Observation Entry from the Collaborative Journal

Phil introduces the session. The focus today will be on looping and working towards the construction of a piece for the concert on the 5th July. It will include group work and individual work.

Duncan takes over. Problems with 'the Looper' mean a reversion to plan B! This bit of freeware is not working quite right (wrongly configured on the computer) but Duncan turns this into a teaching point. Technology can fail and you have to make decisions about whether to continue with it or adopt an alternative approach. Duncan uses a Audiomulch patch with a 2 second delay on his laptop.

The session is going to start with pupils using their own instruments or voices. Pupils don't show many signs of remembering what they did in the previous session! Pupils convene around the front of the classroom with a range of instruments including violins, flute, clarinet, mini double bases, trumpet, saxophones, electric guitars, etc.

Duncan asks what we should start with. Do you need to remind yourself about what it does? What do we need to make it work? We need a microphone holder – a person - to walk around and collect the sounds. Where are you going to start Jody? Without further instruction, she goes around collecting sounds from each instruments and these get added into the mix (with 2 seconds of echo applied to each sound)

What works? What doesn't? What do you like? Long sounds. How long is the loop? 2 seconds. Did you like it when we had people playing the same note at the beginning? Yes.

So, we're going to make a piece to perform.

How's it going to start? What shall we start with? Long note. Should it be the same or different? We need to work together. Like a chord? A 'C' chord. Can we choose an instrument to start with? Strings. Why should it start with strings? Err. A double bass and a long, low note. An A. And a C on the violin.

Let's just hear those together. Sounds a bit out of tune. Do you want it happy? Let's try a C sharp then. It's a happier sound. Is it really, or is that one of those right answers? Does it really sound happier? What about if you played an A and a D? I think it should go lower. It doesn't go lower! It jumps from low to high and it doesn't sound right. I reckon if we add a 3rd note to the chord it will sound better. I think that not having a major or minor sound at the beginning isn't one thing or the other.

The discussion continues with some more experimentation. Lots of questions and answers.

Under the control of Jodie and the mic, the soundscape emerges.

When she comes to you, should you have the choice to say no? I think no. If she comes to you, it's like that thing when someone gives you a Christmas present you don't like! You have to say you like it!

We need a set of rules. The first time she comes you play a long note. The second time – what do you do? A short note? You could have a pattern of notes.

The five notes from the start get turned into a pattern (circle of notes).

Do you think we could speed up the tempo at some point.

You've got 3 min to come with a pattern of notes from these patterns.

Can we listen to each pattern one at a down. Patterns are auditioned one by one. The responses that Duncan makes to these early stage melodies are interesting. Perfect, good, quite nice, etc. These all send messages.

Duncan notes the responses to pupils work. There is a discussion about the guitar riff, which is longer than the 2 sec max loop. The pupil doesn't like the overlap and Duncan picks up on the pupils' dissatisfaction.

What did we think about that?

It all mixes together. It gets squashed.

Is that a good thing or bad thing?

They interfere with each other in a mix. Sometimes it sounds out. Sometimes it harmonises. It sounds good at the beginning but by the time we get to the end it doesn't.

Discussion about groups or sound types. One pupil suggestions you should put things that are the same together? Why?

What was good, what was bad? One violinist discusses how the short note section didn't work. Everyone played in the same place.

Appendix B

Multimedia materials

Phil to provide final content here.

Appendix C

Students' Scores

Phil to add details and content here.