Secondary Music Students' Compositional Development with Computer-Mediated Environments in Classroom Communities

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Statement of originality

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except where specifically indicated in the text.

Statement of Length

This dissertation does not exceed the word limit set by the Faculty of Education Degree Committee ("not to exceed 80,000 words for the PhD …in all cases excluding footnotes, reference list or bibliography).

P Kirkman

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As with any project of this nature there are many people without whom the task would not and could not have been completed.

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Abstract

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Over the last decade digital technologies have brought significant changes to classroom music, promising support for the realisation of a musical education for all students. National curricula and exam specifications continue to embed technology more deeply. While these changes increasingly impact on music classrooms, there is a growing awareness that the presence of digital technologies may not always promote meaningful compositional development, particularly at GCSE level.

A 'musical' curriculum seeks to promote meaningful compositional development by building upon a student's previous musical experience and by providing practical, integrated and collaborative composing experiences. Existing empirical research demonstrates that a wide range of digital technologies are used in secondary classrooms to support students' compositional processes. When used successfully, such technologies give rise to computer-mediated environments which promote musical composing experiences. At the same time, current models of compositional development do not adequately account for the ways in which such contextual factors mediate students' compositional development.

In response to this, the current research employs a multiple case study approach to explore the ways in which two secondary music students' compositional development proceeds when working with digital technologies. Drawing from both symbolic interactionism and activity theory as complementary theoretical lenses, students' own views of their developing composing process are positioned in a critical and reflexive dialogue with the researcher's own constant analysis. Tools for data collection include a novel synchronous multiple video capture technique (SMV) developed to meet the demands of the project. The methodology draws on ethnographic techniques and the framework for analysis is based on an adapted constant comparative procedure.

Set in the context of a UK secondary school the thesis explores several themes which emerge from the stories of Sam and Emily, our two student cases, and which add to current understanding of compositional development with computer-mediated environments. A theoretical model is proposed which presents the process of compositional development in terms of four connections that emerge from Sam's and Emily's ways of working. They are: connecting in institutional space, connecting in personalised space, connecting in emancipated space and connecting in shared space. Four developmental points are offered within these spaces: a point of enabling, a point of discovery, a point of transformation and a point of connection. Each point of development is linked to a type of development which, drawing on the literature, have been given the following titles: scaffolded development, serendipitous development, computer-mediated development and creative development. Finally, the study suggests several implications for teachers and avenues for further research relating to the nature of personalised spaces, providing varied contextual opportunities, understanding computer-mediated composing and promoting student ownership.

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1. INTRODUCTION

> A musical thought is one spoken by a mind that has penetrated into the inmost heart of the thing; detected the inmost mystery of it, namely the melody that lies hidden in it; the inward harmony of coherence which is its soul, whereby it exists, and has right to be, here in this world. (T. Carlyle, 1840)

Carlyle describes musical thought as something which gets to the heart of the matter. A great deal of literature on music education reveals similar ideas. A music education that has a 'right to be here', which gets to the core of the subject is known as a 'musical' curriculum (Paynter 2000; Mills 2005). This literature establishes that a musical education, which is personally meaningful to students, builds on their different previous experiences, and promotes specialist skills through new practical, integrated and collaborative activities. (Paynter and Aston 1970; DES 1991; Swanwick 1992). Music is a part of humanity. At different levels, in different contexts and with different degrees of training, all people engage with music. A musical curriculum recognises and builds on this view.

From personal experience as a student, teacher and head of a music department, I have been witness to occasions when the "inmost heart of the thing" has been experienced as a part of music making in school. I have also seen the ways in which digital technologies *can* foster and support students in finding some sense of mystery, harmony and coherence during times of musical composing or meaning making.

As a GCSE student with several years of instrumental training, I was able to use computer software to compose and record instrumental parts separately. With this, a *Fostex D8* reel-to-reel recorder and an *Alesis 'quadroverb'* made possible an authentic realisation of my understanding of a piece of popular music. During my music degree course I began to explore the world of electroacoustic music in the studio at Durham University. Inspired by the works of Stockhausen, Xenakis and Ligeti, I grew to love the alternative worlds that could be discovered and created only through electronic audio editing and sound synthesis. I began to find a personal voice in the ways electronics be manipulated and combined to produce sounds that hinted at rich metaphoric worlds. When I became a teacher of music and head of department in a technology college I was able to provide a wide range of computer hardware and software for GCSE and A-level students to use when composing. Some students were able to use these facilities in meaningful ways, yet other students struggled to find these tools helpful. As a teacher, it was clear to me that computer-based technologies can help to provide opportunities for musical activity, but do not always promote meaningful and penetrating music making.

The literature confirms the most widespread use of digital technologies in music classrooms at the present time is in support of composing (Ashworth, 2007; Savage, 2010). However, it is also clear that compositional activity with digital technologies is not always personally meaningful and does not always promote the development of specialist skills (Edexcel, 2007; Salaman, 2008). Further examination of the literature in this area reveals that this problem, faced by classroom music teachers, may arise from the current lack of understanding about how compositional development proceeds when working with digital technologies. The following discussion lays out a case for the current research, which seeks to address this issue.

A review of the literature on composing and classroom music education, in Sections 2.1 and 2.2, leads on to a discussion of computer-mediated environments used to support musical activity in school music (2.3). Section 2.4 reviews current understanding of compositional development and presents the need for research that works towards a 'musical' model of compositional development. Section 2.5 explores how research on the composing processes of novices and experts suggests examining students' composing strategies as a way of addressing this gap. Section 2.5.3 presents the research questions as they emerge from gaps in current literature. The central research question asks: How does the compositional development of secondary music students proceed when working with computer-mediated environments over time in a classroom community? Alongside this three sub-questions enquire: 1) What qualitatively different composing strategies are observed when secondary music students compose with computer-mediated environments in classroom communities, and how are they used? 2) What qualitatively different composing strategies do secondary music students articulate as part of their process of composing with computer-mediated environments in classroom communities, and why are they used? 3) What, if any, are the qualitative changes in the nature and use of the composing strategies employed by secondary music students working with computer-mediated environments over time and in classroom communities?

Following the statement of the research questions, chapter 3 explores the theoretical foundations and assumptions of the research, and moves through to describe the multiple case study method and tools for data collection (3.2 - 3.3). The plan for carrying out the research in the field and the analysis framework are outlined in 3.4 and 3.5 respectively. Section 3.6 presents the key findings of the pilot study and their implications for the continuing research.

Chapters 4 to 6 present the findings, which move through a discussion of the context of the study into a discussion of the composing processes of Sam and Emily, with whom I worked closely over the course of the research. Sam is presented as an explorer who, with a wealth of

informal experiences and a passion for music, appears to see composing in school as an opportunity to transform a tradition he describes as 'boring', 'obvious', 'irritating', 'set' and overly 'classical'. Emily is a deeply expressive and artistic musician upon whom school music making imposes constraints that appear to provoke an oscillation between her identity as a performer who presents music for the benefit of others and the artist who hides away her more personal and expressive identity. In chapter 7 I draw on Sam's and Emily's experiences to construct a descriptive model of computer-mediated development. Implications for teachers and further research are discussed in Section 8 where I draw on the model presented in chapter 7 to describe these implications as 'connections'.

2. A CASE FOR THE RESEARCH

In the introduction I briefly located the current research within my personal music education history. I also presented the main aim in the current research, of understanding about how compositional development proceeds when working with digital technologies, which came from these experiences. Set into this context, I will now move on to locating the current study within the current body of research and, in so doing, present a case for the research. Drawing on the literature, I will examine the need for a new 'musical' understanding of compositional development and outline how the current study addresses this need.

2.1. COMPOSING AND CLASSROOM MUSIC EDUCATION

Over the last 20 years, successive music national curricula (DFES, 1988; DES, 1992; QCA, 1997; DFES, 2000; QCA, 2007c; QCA, 2007d), examinations (OCR, 1995; Edexcel, 2000; OCR, 2000; OCR, 2005; Edexcel, 2006), government reports (DFES, 1997; QCA, 2004a; 2004b; 2005; 2007b; DFES, 2007) and published texts (Hiscock and Metcalfe, 1992; Bennett, 1996; Hiscock et al., 2000; Phillips, 2002; Bowman and Winterson, 2006) have displayed a division between two conceptions of music in school: firstly, the traditional notion of music education, which focused on the repertoire, history and traditions of Western art music; secondly, the view of 'musical' education as a meaningful study that builds upon students' experiences and encourages positive interaction through the practical and integrated activities of composing, listening and performing. This second notion of a musical education emerged, during the late 1960s and 1970s in response to what was considered by many to be a theoretical and lacklustre music curriculum. A new wave of thinking, pioneered by Peter Maxwell Davies, Wilfred Mellors, John Paynter and others involved in the 'Schools Council Project' (1973-1982) championed a 'musical' curriculum which would build on children's existing experience and promote a more universally relevant classroom music education. A significant feature of this new 'musical' approach was the centrality of composing as a means of uniting different aspects of musical practice. Until this time and before the introduction of the National Curriculum (1988 –1993) and the first GCSE examinations (1986), 'O' levels presented music in a way that divided practical from written units and composition activities made up only a small (between 0-40%) part of the grade. Composing units were assessed through theoretical exercises in melody and harmony, rather than a composition task, and the emphasis of this curriculum was on providing successful 'answers' to traditional 'problems' by memorising and using a canon of musical knowledge.

2.1.1. **Towards musical composing in secondary school**

In 1985 the new GCSE National Criteria for Music (DES 1985) made it clear that the new school curriculum for students aged 14-16 should involve listening, composing and performing as integrated activities. The assessment objectives, state that:

> …any attempt to isolate or compartmentalise the activities [listening, composing and performing] should be discouraged. When they are considered separately, it is for focus or emphasis. A musical education must be a coherent experience of all three: listening, performing and composing. (DES 1985 p. 2)

It is clear from this passage that the notion of a musical curriculum was becoming central to thinking at the policy level. The National Curriculum Music Working Group noted this musical approach in their report (DES, 1991). They too proposed a curriculum which for the first time included composing as a practical activity for all students. According to the working group, a 'musical' curriculum promotes meaningful education by allowing students to build their understanding actively on previous musical experience and students do not engage with musical activities in isolation, instead they interact practically through language and musical gesture (ibid.). Thus in the UK, the place of composing in music education both at Key Stage 3 (KS3) and KS4 builds upon this notion of a 'musical' perspective.

2.2. MUSICAL COMPOSING IN SCHOOL

Having seen how composing came to be positioned within the secondary school curriculum, I will now explore more deeply the notion of musical composing. I present evidence to support an understanding of musical composing as a dynamic process of personal meaning making which involves interaction between the student and the social and cultural context in which they construct a creative music product.

2.2.1. **Musical composing as personal meaning making**

We will first turn to the notion of musical composing as meaning making. While we only have the space to deal briefly with the notion of meaning in music, Kopiez (2002) provides a lucid review which suggests three potential approaches to this area. Firstly, he proposes that music may be devoid of meaning (Kopiez, 2002 p. 523). Kopiez argues that from this standpoint it is hard to explain why listeners attribute emotions (as an aspect of a meaningful experience) to purely instrumental music and that it is naïve to assume that the intention of a composer is to communicate, in a one-way fashion what they are feeling (Behne, 1982). Secondly, Kopiez presents the view that music's meaning arises in its musical form. From this perspective musical

meaning can only be found in cognitive acts, such as the perception and conception of musical form. Yet, Kopiez argues that taking this position excludes other significant aspects of music and thus has come under criticism (see Gardner, 1985). Thirdly, Kopiez presents the aesthetics of expression as a perspective which suggests that the meaning of music is the expression of emotion. Cooke (1959) supports this position when he proposes that those who find expression in music find that the expression is emotional in content. Yet this position can be countered by the argument that the function of music cannot be reduced to the communication of emotions because i) emotions exist in the absence of music and ii) music can be appreciated for its own sake (Small, 1998). Drawing on these ideas, in the current study I adopt the view that composing as an aspect of a musical education relies on a synthesis of these positions. After Finney (1999), and drawing on Small (1998), we can resolve the tension between the different positions discussed by Kopiez (2002) by thinking of meaning in music in terms of the relationships that are involved in the process of 'musicking' (Elliott, 1994). Small's notion of 'musicking' encompasses every act related to music which, for example, in a Western art music context may involve collaboration between performers, listeners, concert organisers and even programme sellers. He presents Bateson's (1972) understanding of emotion as the ways in which human computations about relationships resonate in consciousness. Small concludes that 'to music' is to take part in relationships and therefore necessarily involves form, emotion, structure and sentiment. One might question 'when then are relationships not musicking?' I would respond by drawing on Blacking (1974) and suggesting that all relationships *are* ultimately implicated in acts of music making as they impact however indirectly on acts of humanly organising sound. Thus in the current study meaning is constructed in music when the resonance of an individual's notions of the form of the music is associated symbolically with the resonance of their computations about social connections (emotion). In a classroom this means that an individual student experiences emotion in a personal and dynamic process of meaning making when they perceive some music and associate this with a relationship.

This theoretical construction is useful in two ways. Firstly, it illustrates that meaningful engagement with music is contingent on personal experiences of 'musicking'. An individual must build on their individual experience of music as a lived process to make 'sense' of an act of music. Secondly, it highlights the idea that meanings are both conceived and perceived. In his discussion of compositional engagement with music technology, Dillon suggests that music comes into being through reciprocal interactions between the artistic product and the maker (Dillon, 2003). Students as 'makers' (performing or composing) require the freedom to build upon their own experience of music for their musical 'product' to be personally meaningful. At the same time, for the resulting piece (product) to be meaningful to others they must balance their own experience with that of their audience (Cook, 1990; Toynbee, 2003) who, as listeners

must in turn make sense of what they hear (Burnard, 2000b; Barrett, 2003). Put another way a 'musical' education is both a personal and a social meaning-making activity (Burnard, 2006b; North and Hargreaves, 2008).

2.2.2. **Musical composing as a situated and dynamic creative process**

It has been seen that musical composing is a personal process of meaning making; however, the previous discussion also suggests that composing requires realisation and reception to be a complete musical process. The following discussion illustrates that composing as meaning making is situated in the dynamic interactions between the individual, the product of composing and the environment in which the activity takes place.

Composing: product and process

A review of the composition literature reveals a recent growth in the number of studies that report on both compositional processes and products (Swanwick and Tillman, 1986; Bunting, 1987; Webster, 1987; 2002; Davidson and Welsh, 1988; Lerdahl, 1988; Delorenzo, 1989; Kratus, 1989; 1994b; Green, 1990; Simonton, 1991; Davies, 1992; Barrett, 1996; Younker and Smith, 1996; Auh and Walker, 1999). It is clear that process involves the cognitive work of the composer during the creation of a personal product (Bunting, 1987; Davidson and Welsh, 1988; Kratus, 1989; Webster, 1992; Mellor, 2008). Swanwick's (1988) notion of 'process' underlines the idea that products are always provisional and subject to criticism, change and development. Products can be seen as snapshots in a continuous process. However, these observable artefacts often serve to separate the creator from the music (Swanwick and Tillman, 1986; Simonton, 1991). Thus a distinction is created between the mental process of composing (composing process) and the observable development of products.

Several 'composing process' studies have drawn on Wallas's (1926) stages in the creative process: preparation, incubation, illumination and verification (Burnard and Younker, 2002; Webster, 2002; Collins, 2005). In Webster's (2002) revised model of creative thinking in music Wallas' stages become an active process located between divergent and convergent thinking. Divergent thinking is an imaginative process of generating many possible answers. Convergent thinking is reductive, concerning the evaluation of various solutions and settling on the best result. From this perspective, 'creative thought' is a problem-solving process through which solutions to specific problems are created. For example, students may be asked to develop a serialist piece by taking a tone row and extending it using several pitch permutations and rhythmic transformations. Other studies suggest that problem finding rather than problem solving is a form of behaviour more closely linked to creative thinking (Wertheimer 1945; Getzels and Csikzentmihalyi 1976). Building upon this understanding, Burnard and Younker

view musical composing as a dynamic process in which different stages may occur reiteratively and in different sequences (2004). Burnard and Younkers' (2004) reinterpretation of Wallas's and Webster's models are shown in Figure 2.1. This illustrates composing as an individual creative process that involves finding ideas and shaping them towards a chosen solution. As such it is consistent with the 'musical' perspective outlined above.

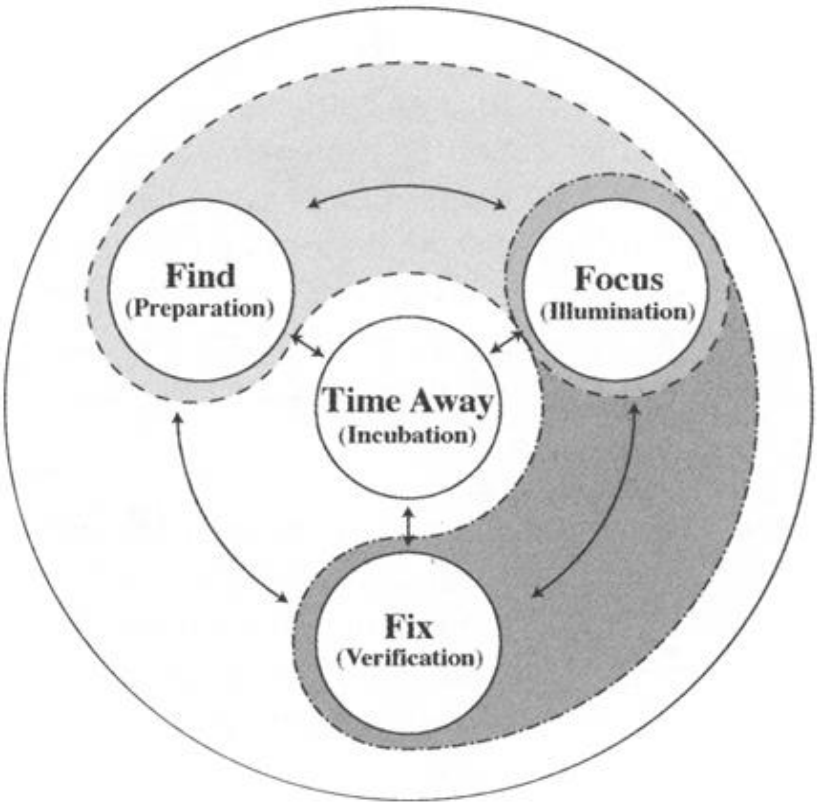

Figure 2.1: Burnard and Younker's (2004) model of creative thinking in music.

Composing in musical classroom communities: person and environment

Having seen that composing is an individual dynamic process of creative thinking, the discussion moves on to examine the notion that musical composing is situated in specific social and cultural contexts.

Recent work on different contexts of composing draws on Csikszentmihalyi's, (1998) 'systems view' of creativity (Hickey 2003). His approach begins from the position that in order to understand creative thinking one must first ask the question: "Where is creativity?" (Hickey, 1988 p. 325). The resulting model locates creativity in the interactions between individual, domain and field (see Figure 2.2). The domain is a cultural symbol system that preserves and transmits creative products to other individuals, in this case, music, musical products and the tools used in acts of 'musicking'. The field is made up of people who influence a domain such as musicians, critics, teachers and students, the "social organisation of the domain" (Csikszentmihalyi, 1999 p. 315). Thus while process and product are intrinsically linked, they are only two aspects of a complex compositional interaction between the process, product, person and the environment (Auh, 2000), which is defined culturally and socially.

Figure 2.4 illustrates Csikszentmihalyi's model. The individual is a music student who works on a creative product in a specific classroom community. The activity takes place with the medium music and through its associated tools, artefacts, models and elements (Cole, 1996; Bruner, 1996). In this case the artefacts and medium arise from the digital technologies used in musical classrooms (2.2.2). In Figure 2.3, 'environment' (Auh, 2000) is the social and cultural context of composing (Barrett, 2003; Hickey, 2003). For example, several studies note the importance of the composing task (Tafuri, 2006; Breeze, 2009; Bolden, 2009) the teacher (Reynolds, 2005; Wiggins, 2011) and work with peers (Webster, 2002; Sawyer, 2008; Meill and Littleton, 2008). This construction is supported by Barrett who proposes that composition exist as "a dialogue between the *child* as musician and composer, the emerging musical *work*, the *culture* that has produced the composer and the emerging work and the immediate *setting* in which the transaction takes place" (2003 p. 6 italics mine). Thus, drawing on the literature, musical composing can be conceptualised as an individual dynamic process of meaning making within a specific context.

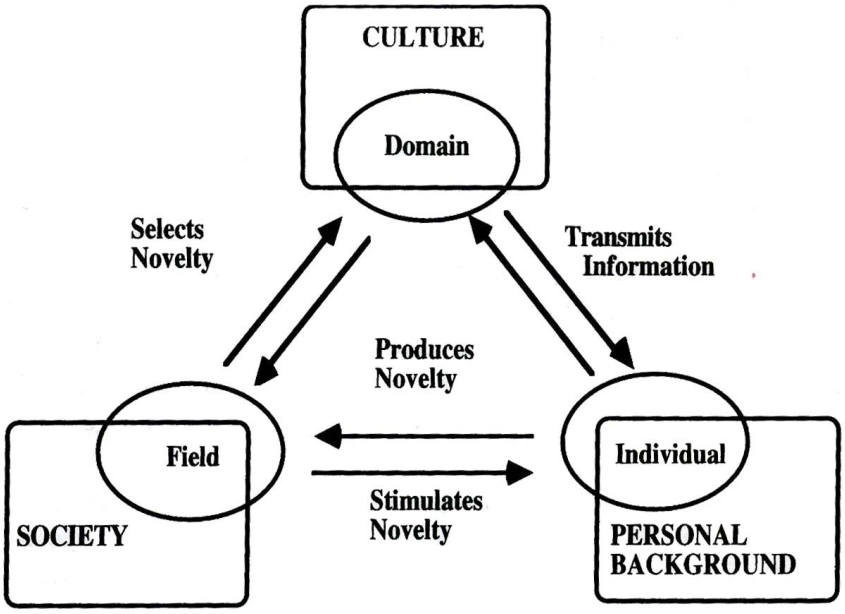

Figure 2.2: Csikszentmihalyi's systems model of creativity.

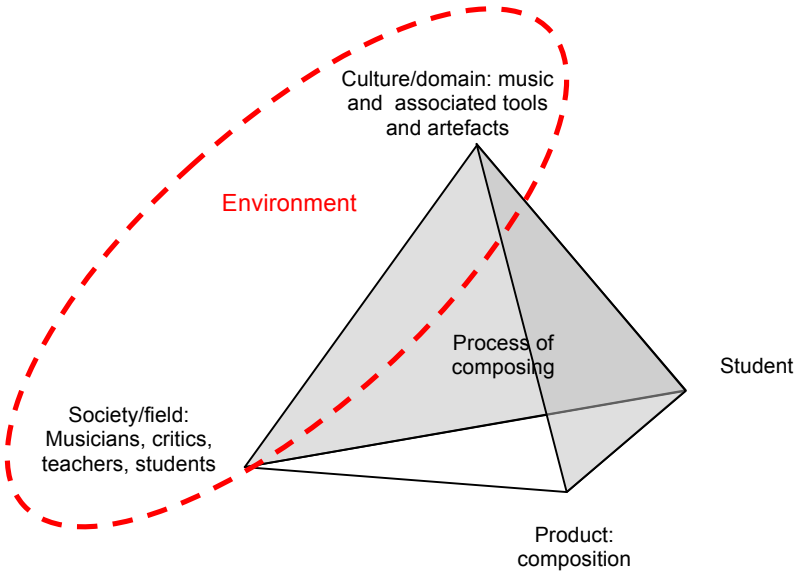

Figure 2.3: Classroom composing as a system of creativity.

2.3. COMPOSING WITH COMPUTER-MEDIATED ENVIRONMENTS IN CLASSROOM COMMUNITIES

Having presented musical composing in school as a situated and personal dynamic process of meaning making, I will now move on to consider the research on students of technologies in school as part of this process.

2.3.1. Digital Technologies in Musical Classrooms

Digital technologies are increasingly being used to support and restructure education in schools (Sheingold and Tucker, 1990; Means et al., 1993; Bates, 1999). They have been a notable feature of each successive revision of the music National Curriculum (DFES, 1988; 2000; DES, 1992; QCA, 2007c) and GCSE specifications (DES, 1985; Edexcel, 2000; 2006; OCR, 2000; 2005; QCA 2007a; 2008). Pitts and Kwami's (2002) survey of 18 secondary schools suggested that the most widespread use of digital technologies was through computer-based composing at Key Stage 4. Pitts and Kwami's study presents the computer as a tool and simulator for assisting with composing and testing hypotheses. This view concurs with the findings of a wider body of research, which reveal the limited application of technology in school classrooms (Reese, 2001; Ruthven and Hennessy, 2002; Ruthven et al., 2004; Thomas, 2008). More recently, Savage's (2010) survey of the use of digital technologies across the UK reveals a similar picture, despite the considerable changes that have taken place outside school. The majority of reported ICT uses were music sequencing and score writing, described by Savage as "technologically conservative" (p.90). Building on this existing body of research, the present study adopts the view of school-based digital technology as systems that:

> …encourage active learning, knowledge construction, inquiry, and exploration on the part of the student, as opposed to being exposed to information delivery systems. (Greaesser, Chipman et al. 2008: 211)

This definition is consistent with the notion of musical composing discussed above (Webster, 2007; Burnard and Younker, 2008; Gall and Breeze, 2008; Ruthmann 2008b).

2.3.2. Digital Technologies and Meaning-Making

In the literature which highlights innovative practice in music education it is possible to identify many different digital technologies which are being used to support composing in musical classrooms (Burnard and Finney, 2007). In this section it is argued that these uses can be helpfully considered under three headings, which highlight the degree of integration between the technology and a student's composing process: tools, instruments and computer-mediated environments. Each will be discussed in turn.

Digital Technologies as Tools

Tool uses of digital technologies noted in the literature can be grouped in the following categories: mobile systems (MOS), web-based services (WBS), computer-based tools (CBT) and hardware/user interfaces (UI). Broadly speaking, the potential of these categories are summarised in Table 2.1. Examples of each technology type can be seen in Table 2.2.

Table 2.2 demonstrates the breadth of technologies that present opportunities in the musical classroom. The literature also provides insights into how these tools may be used. In his discussion on the opportunities of mobile technologies, Baxter (2007) presents the mobile phone as a platform which enables students to store and transport their composition products as mp3s for listening outside the classroom. Web-based services such as *Numu* (Manning, 2007) or *Fronter* (BECTA, 2009) allow students to store and access their work from school and home. Reese (2001) notes the many standard software features of computer-based tools, such as cutting, copying, pasting and dragging, that allow students to work on their developing composition more efficiently. In addition, he notes that students are able to receive immediate feedback through 'play' functions. Several studies have investigated the potential benefits of hardware and user interfaces (Reese, 2001; Seddon and O'Neill, 2003; Reynolds, 2003; Gall and Breeze, 2005; 2007; Field, 2007; Kirkman, 2007). Many devices exploit the communications protocol 'MIDI' which provides many opportunities to record and manipulate performance parameters such as 'vibrato', 'pan', 'volume' and 'sustain'.

Technology type	**Definition**
Mobile systems	Allow access to digital data and communications platforms from small devices that can be easily transported between different locations.
Web-based services	Have broad applications, which draw on the internet's storage, communication/presentation, transmission and search capabilities.
Computer-based tools	Provide specific functions within software environments directed at the completion of tasks more effectively or more efficiently.
Hardware or user interfaces	Provide for individuals or groups means of interaction with the digital technologies. It should be noted that some hardware interfaces are still analogue, and thus fit outside our notion of computer-based technologies. However, these interfaces are increasingly based around digital microprocessors.

Table 2.1: Types of digital technologies and their definitions.

Technology type	Technology group	Tool example	Source
MOS	mp3[1] players	*IPOD, Creative Zen,*	Roberts, 2005; Horn, 2006; Ashworth, 2007; Vardy and Kervin, 2007
MOS	Mobile phones	*Iphone, Nokia, Motorolla, Samsung*	Roberts, 2005; Ashworth, 2007; Baxter, 2007
WBS	E-portfolio's, Blogs and wikis	*NUMU, Teaching music, PBWiki, Wordpress*	Manning, 2007; Ruthmann, 2007; Waters, 2007; Ashworth, 2008; Kirkman, 2008; Savage, 2008
WBS	e-learning platforms	*Musit Interactive*	Lou et al., 2003; Brickell and Herrington, 2006; Seddon, 2007; Rhode, 2008
WBS	Networking platforms	*Firstclass, Fronter, Jam2Jam, Impromptu, ChucK, Audicle*	Dillon, 2003; Cook et al., 2005; Sorensen, 2005; Brown and Dillon, 2007: BECTA, 2009; Dillon, 2007; Kirkman, 2007; Cayari, 2011
CBT	Multimodal computer workstation software	*Cubase, Logic, Sibelius, Finale, Wavelab, Cool Edit Pro*	Fölkestad, 1996; Seddon and O'Neill, 2003; Fölkestad and Nilson, 2005; Reynolds, 2005; Kirkman, 2007; Gall and Breeze, 2008
CBT	DJ software	*E-Jay, Virtual DJ*	Dillon, 2004; Gall and Breeze, 2008; Green 2008
HUI	MIDI[2] devices	Keyboards *(MK149)* Controllers *(Korg nanoPAD)*, Mixers *(BCF2000)*	Reese, 2001; O'Neill and Seddon, 2003; Gall and Breeze, 2007; Kirkman, 2007
HUI	Analogue-Digital audio devices	*IO2, FA101, Audigy 2, MQT*	Reynolds, 2003; Gall and Breeze, 2005; Field, 2007; Kirkman 2007
HUI	DJ systems	Turntable, Digital mixer	Challis 2007

Table 2.2: Types of digital technologies that may support musical curricula.

[1] Mp3 – Stands for 'Media Player 3' file. This is a standard digital format for storing musical sound performances.

[2] MIDI – Musical Instrument Digital Interface is a common protocol allowing digital technologies to communicate

Recent publications in support of the use of computer-based technologies still demonstrate a lack of diversity in the hardware and user interfaces employed in secondary classrooms, in particular an overreliance on traditional 'music keyboard' controllers. (Pitts 2005; Ashworth 2007; Ruthmann 2008a; Savage 2010; Major & Cottle, 2010). Nevertheless, user interfaces allow students greater access to the benefits of both web-based technologies and computer-based tools. Thus digital technologies present many tools that can assist with the composing process. Yet when viewed as a tool, technology can become transparent in the composing process. It is seen as an 'assistant' in a process which involves students in active engagement with a developing composition but the technology remains passive.

Fölkestad's (1996) study of the composing processes of secondary-aged students contrasts this view of digital technologies as tools with an alternative perspective: digital technologies as instruments. In his study, Fölkestad notes two qualitatively different approaches to composing. A *horizontal* approach sees composition and arrangement as separate activities. Thus the computer is a tool that facilitates the 'arrangement' of a piece that has been composed externally. In contrast, *vertical* composers write small chunks in an integrated process that sees the digital technologies as instruments. For vertical composers the composition is not planned before the composing process begins but unfolds through interaction with the computer. Fölkestad's (1996) study makes it clear that, while the metaphor of 'tool' can help to reveal the potential of digital technologies to assist in the composing process, it does not adequately address the way that all students compose when working with technologies. Thus a more complex construction is required.

Digital Technologies as Instruments

In contrast to the notion of digital technologies as tools, Brown (2007) suggests that they should be viewed as instruments to re-establish the interactive nature of musical engagement with technology that has been a constant source of inspiration for composers through the ages.

Salaman (1997) presents an early commentary on digital technologies employed as instruments in musical classrooms. Salaman offers a pessimistic view of electronic keyboards that provide students with little control over shaping phrases, dynamic nuances and which generate poor quality sounds. However, I would argue that in presenting a view of keyboards as a 'poor substitute for the real thing', Salaman's paper fails to explicate the potential of keyboards as instruments in their own right. It is true that many keyboards, especially less expensive models, cannot respond dynamically to 'touch' as many acoustic instruments can. However, it is not true to say that phrases cannot be shaped. Volume controls are a common feature of most keyboards. Many keyboards also come equipped with modulation and pitch bend wheels that can be used to add expression. Equally, keyboards contain many different sounds, most of which are timbres quite unlike any 'acoustic equivalents'. Salaman may be justified in presenting a case that keyboards are not always used expressively in music classrooms. However, just as with more traditional acoustic instruments, training and practice are required to achieve such expression. A more recent example of digital technologies employed as instruments in a secondary school is Savage's (2003) *Dunwich Revisited* project. Savage uses the project (Savage and Challis 2001; Savage 2003), a KS3 and GCSE composing activity that culminated in a performance at a local concert hall, to demonstrate the use of digital technologies as instruments. This project included mobile systems (a MiniDisk player), computer-based tools and hardware/user interfaces. The *Dunwich Revisited* project demonstrates the wider range of sounds and effects that are available through digital technologies. Savage draws attention in particular to the "micro-phenomena" (2001, p. 99) of sound with which students were able to engage through digital technologies. Further examples of digital technologies employed as instruments in music classrooms are shown in Table 2.3. Thus digital technologies can be employed as instruments in musical classrooms, which make available fresh sounds and new sound-shaping techniques and which require a greater degree of musical engagement when composing.

Instrument	Description
Korg DS-10,	A software instrument which makes use of a *Nintendo DS* game console
Wii Theramin	Uses a *Wiimote* game controller and LED gloves to control sounds from a *JV-1080* synthesiser module
Bloom	An ambient 'art-composition-performance' instrument for *iPhone iPod* or *iPad*
Monome	A USB controller that uses open source software to access preset sounds and controllers, enabling music to be performed in real time in conjunction with a computer-based software program.

Table 2.3: Digital technologies employed as instruments (Sources: Kirkman, 2009; Moore, 2008, Baxter 2009; Patterson, 2009).

Yet, while the notion of digital technologies as instruments underlines the opportunities they present for sound design, performance and improvisational aspects of composing, it does not address their impact on composing processes that take place over time. This gap leads to our third degree of engagement, which emphasises the way in which technologies can give rise to distinct environments, changing the very nature of an individual's composing process.

Digital Technologies as Computer-Mediated Environments

Several recent studies of composing in classroom communities have presented digital technologies a medium that affords and constrains action and transforms compositional activity (Dillon, 2003; Gall and Breeze, 2005; Fölkestad and Nilsson, 2005; Seddon, 2006a). This view of digital technologies builds on a collection of work that can be brought together in their use of 'sociocultural' perspectives (Wertsch, 1998).

The sociocultural approach builds upon Vygotsky's general law of development which asserts that:

> Any function in a child's cultural development appears twice – first between people and then inside the individual (1978, p. 57).

This formulation suggests that human learning and development is inherently social. The processes that occur in a student's mind - intrapsychological processes - are developed through interactions between people and mediational means - interpsychological processes (Wertsch, 1998). Vygotsky (1978) proposes that humans inhabit an environment that has been transformed by the activities of others, and that these transformations are the result of the use of artefacts or

> …aspects of the material world that are taken up into human action as modes of coordinating with the physical and social environment. (Cole, 1995 p. 190)

In other words, a sociocultural view suggests that natural behaviours can be transformed into 'higher' mental functions through interaction with artefacts (Smolucha and Smolucha, 1986), a process referred to as 'mediation'. The term 'computer-mediated environment' (Kaptelinin, 1996b) is adopted to reflect the notion that digital technologies as 'mediational means' can give rise to transformative environments (Wise et al., 2011).

A triangle is commonly used to illustrate the process of mediation (Figure 2.4). Action can take the form of unmediated or 'natural' action, which takes place along the base of the triangle, and mediated action, which links the subject and object through artefacts. In this case the student is linked to the developing composition through the digital technologies (instruments) used as part of the composing activity. Unmediated action occurs at the most basic level when a naturally occurring object or situation provides an opportunity for action: a student makes a sound. Mediated behaviours occur when an activity involves material tools: a student makes a sound with a stick.

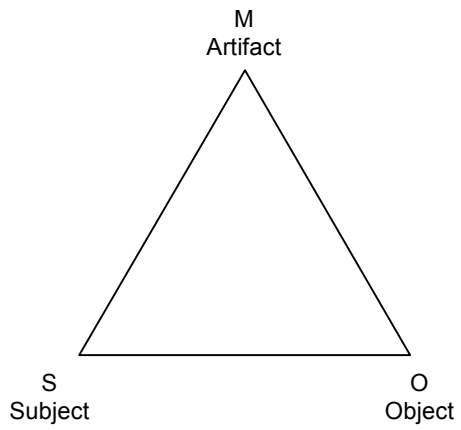

Figure 2.4: The basic meditational triangle (Cole, 1996, p.119).

Mediated behaviours are seen as directly connected to the tools (primary artefacts), and indirectly connected through a 'culture' that adds social meaning to the tools through representations or modes of behaviour (secondary artefacts). The tools provided by digital technologies inherently represent modes of behaviour; for example, listening using the play tool, moving ideas using the mouse or performing using a MIDI controller. Thus they can be thought of as secondary artefacts.

A further implication of a sociocultural perspective is that, when viewed as a medium, a cultural artefact is simultaneously material, social and also transformative (Cole, 1996 p.119). This notion builds upon Wartofsky's (1973) suggestion that artefacts:

> …can come to constitute a relatively autonomous world…this is particularly true when the conventions of representation – e.g. in art, or in language – become transparent".(p. 208)

Wartofsky calls these imagined worlds 'tertiary artefacts'. It is certainly true that the conventions of representation are transparent in the case of digital technologies, both in terms of the programming languages used to create functions and also the software architecture[3]. When digital technologies are viewed in this way, they come to colour the way we see the world. Thus digital technologies can be thought of as tertiary artefacts. In the light of this understanding it is clear that a process of transformation will involve both an individual, in this case a student, and interaction with a cultural artefact. According to the sociocultural approach adopted in the current study, the potential of digital technologies to promote meaningful composing in classroom communities lies in their ability to transform students' cultural behaviour. Such a transformation occurs when a problem is solved such that the solution lies not in the middle between two extremes (for example balancing the process directed by a worksheet and digital context with a student's approach to composing) 'but on a different plane that makes it possible to see the subject from a new point of view (Vygotsky and Rieber, 1999 p.243). The literature on music education with digital technologies provides evidence to support the case that computer-mediated environments can impact upon and allow for the transformation of students' composing processes in several ways. These will be discussed in turn.

Firstly, computer-mediated environments impact upon students' composing activity by providing support that helps students to master tasks or concepts that they are initially unable to grasp independently (Wood et al., 1976). Bruner (1984) uses the metaphor of scaffolding to describe this assistance. Several examples of computer-mediated environment providing scaffolding for students' composing processes are evident in the literature. Reynolds's (2003, 2005) study of the composing activities of primary students suggests that children with little or no musical training are able to compose without restriction when composing with technology. Dillon (2003, 2004) explores the group-work of secondary-aged students using a software environment (*e-jay)* that allows the manipulation of pre-recorded musical phrases as coloured blocks on the screen display. She reports that the immediacy of the software, in particular the interface, provided a means by which students could reflect on ideas. Together these studies suggest that digital technologies as instruments promote circumstances in which more expert levels of working can be achieved. Wertsch (1998) discusses this notion by drawing on Gibson who describes these opportunities as affordances: "what [an environment] offers the animal, what it provides or furnishes, either for good or ill" (1979 p. 127). Hickey's (1997) study used a specially designed program called *Music Mania* to lead two secondary students through the

[3] Software architecture refers to the structure of the whole software system and the relationships between the visible parts of the system.

composing process. She found that the students demonstrated a higher level of achievement in creative music making than was expected based upon previous efforts. Seddon and O'Neill (2003) comment that the separation of the three concepts - introduction, exploration and composition – and musical examples provided by the program were likely to have affected what the students conceived of as an 'appropriate' composition. Nevertheless, this study suggests that the scaffolding provided by the computer-mediated environment had a positive impact on students' composing. In Hickey's (1997) study, the constraints introduced by the structure of the program provided scaffolding by guiding students through the composing process. This notion is supported by Johnson-Laird's (1988) finding that constraints, such as structured problems, can guide the process of decision-making (Johnson-Laird, 1988). In a similar way, constraints introduced by technology can direct students' composing process. Thus computer-mediated environments can introduce affordances and constraints that can provide support to students and guide their composing process.

A second point to note is that as well as providing opportunities for support, artefacts transform activity in an active process that involves an "*irreducible tension*" between students as active agents and the mediational means, in this case computer-mediated environments (Wertsch, 1998 p. 25). Characterising digital technologies in this way complements the view of musical composing discussed above and Csikszentmihalyi's systems view of creativity which positions the individual in dialogue with the culture, emerging work and immediate setting (2.2). Several studies demonstrate the tension between students as agents and the mediational means of digital technologies that afford and constrain action. Furthermore, these studies suggest that the technologies are perceived and experienced differently by individual students over time as their mastery of the tools increases.

Collins' (2005) study of a professional composer working in a computer-mediated environment demonstrates that the aural and visual capabilities of computer-based tools and hardware interfaces allow a eveloping composition to be viewed as a whole. In Collins' study this resulted in a restructuring of the compositional problem. Yet the restructuring cannot be attributed either to the composer as active agent or to the technology but instead resulted from the confluence of both. Gall and Breeze (2005) describe a study of students working with computer-mediated environments in classroom communities. They outline multimodal affordances, such as the visual representation of the '*eJay'* screen and the project window, which allow students to view the structure of the piece. In software program *'Cubase'* the facility to enter different edit screens allows the use of staff notation. Data can be saved for the next lesson using the function menus, and the project window serves as a focus for collaboration. Gall and Breeze found that many of these affordances did not require explanation across three different tool-based

programs (*eJay*, *Cubasis* and *Cubase VST*). As in Collins' study, the composing processes described in Gall and Breeze's research cannot be ascribed either to the students or technology independently. Instead they arise from the two in tension.

Gall and Breeze's study demonstrates clear differences in perception as some students found the pre-programmed nature of the *'eJay'* samples constraining, while others found the lack of limits within *'Cubasis'* presented problems. This suggests that just as students perceive constraints and freedoms in composing tasks differently (Delorenzo, 1989; Burnard, 1995), so too will they experience affordances and constraints introduced by technologies in their own way. A further study by Fölkestad and Nilsson (2005) reveals five different variations in the practice of composing, each with a different object in the foreground: 'the synthesizer and computer', 'personal fantasies and emotions', 'the playing of the instrument', 'the music itself' and 'the task'. Fölkestad and Nilsson report that the awareness of different objects seems to give rise to the perception and use of different opportunities and propose a definition of acting creatively as "the ability to perceive affordances" (p. 24). Gall and Breeze (2005) also note that the program features used by students - the project window, edit screens, the save function - all occur at the surface level of the programs. In other words the affordances most likely to be used were those that could be perceived with little or no manipulation of the default software set-up or prior knowledge of the software. They conclude that software features at the foreground level, which do not require explanation, are more likely to be employed. It should be noted that prior knowledge of the software cannot be assumed as students received little instruction in the use of the software and the study was not conducted over time. Thus it may be that students' use of mainly surface features resulted from their lack of knowledge of the software. This highlights the need to consider the idea that the transformation of students' composing activity relies upon the mastery of cultural tools (Wertsch, 1998). Students must not only be able to perceive the affordances of the digital technologies, but must also have the necessary skills and knowledge of how to use the mediational means to achieve the desired result. For example a student may perceive that it is possible to record a voice onto a computer through a particular piece of music software but may not know where to plug the microphone in. As a student's mastery of the digital technology increases, so their ability to perceive creative opportunities and act freely will increase. As a result, their composing will be increasingly transformed over time. While Gall and Breeze emphasise different levels of affordances and Fölkestad and Nilsson stress the nature of the affordances, both studies highlight the need to consider the increase in individual agency as students gain the necessary competences with the technologies, and reveal that students perceive and experience digital technologies in different ways. Thus the affordances and constraints introduced when students work with computer-mediated

environments can direct and transform students' composing process and do so in different ways depending on how the digital technologies are perceived over time.

Thirdly, digital technologies can impact upon and transform students' composing processes as they mediate social interaction. In classroom communities, students do not work in isolation but interact with peers and teachers. Digital technologies provide the means for students and teachers to enter into a discussion of a developing composition mediated by technology. This can enable students who may not have the language to describe musical features or musical skill to perform ideas to communicate through music or gesture. For example, Dillon (2003, 2004a) explored the group-work of secondary-aged students using a software environment (*e-jay)* that allows the manipulation of pre-recorded musical phrases as coloured blocks on the screen display. She reports that the immediacy of the software, and in particular the interface, provided a means by which students could collaboratively reflect on ideas. Ruthmann (2007) reports on a 'composers workshop' approach to composing, which allows students to share the efforts of other students. In this study, computers provide a way of communicating ideas between students and receiving feedback. Online galleries provide forums where students can find ideas and comment on others' work. A notable feature in Ruthmann's study is the way that online galleries provide a means for students to access their work outside the classroom. Thus the boundary of the 'classroom' is extended beyond the walls of the physical space. Baxter's (2007) previously mentioned case study of the affordances presented by mobile phones is a further example of computer-mediated environments extending the boundaries of classroom communities. Seddon's (2006) study, using the *'Musit Interactive'* music sequencing program, is a good example of how computer-mediated environments outside the physical space of the classroom can mediate social interactions. In Seddon's study the local work sessions were shared by e-mail rather than live on-line communication and consequently the dialogue as well as the composition unfolded in a slow, considered way. In contrast, *jam2jam* (Brown and Dillon, 2007) also facilitates interaction between students. However, these are musical and in real time rather than collaboration via music and text. Such an improvisational approach requires performers to listen and compose in real time as they respond to the compositional ideas they implement. Thus computer-mediated environments impact upon students' developing composing process and may do so in different ways depending on the nature of the software.

A final point is that the use of mediational means can lead to the tools themselves being transformed (Wertsch, 1998). Norman (1988) argues that constraints are frequently introduced by the technology rather than an individual's ability to perceive affordances. As digital technologies do not occur in nature this is, in essence, a social interaction between the technology designers and students. Classroom teachers are agents in the design process of the

digital technologies employed in classroom communities. Teachers choose the combinations of software and hardware interfaces that will be available to students. If teachers are agents in the design of the tools themselves, it follows that, over time, they may exercise this agency and change the tools in response to student needs and the constraints of the technologies. Several studies note that other tools employed by teachers - intervention strategies, composing tasks, stimulus material – are transformed in dialogue with the digital technologies employed in the classroom (Burnard, 2007; Savage, 2005a). Thus it is reasonable to assume that this is also true for digital technologies. For example, the need for alternative ways to access the MIDI capabilities of music software may arise from students who are less competent keyboard players. As they use a computer-mediated environment and become aware of the many affordances available, they may also become aware of the constraints imposed by the medium. In response, teachers may choose to add a new piece of hardware, such as a controller pad, that provides alternative means to work with MIDI. In this way the affordances and constraints of the computer-mediated environments may change over time.

2.3.3. **Summary**

It has been discussed that the literature presents musical composing in classroom communities as a personal dynamic process of construction involving a product that is situated in a particular environment. Underpinned by sociocultural theory, it has been seen that computer-mediated environments can support students by providing scaffolding through affordances and constraints that guide students composing processes. The literature also suggests that students' composing processes are transformed as a result of the irreducible tension between individual agency and the mediational means of the digital technologies. Furthermore, this transformation is subject to a student's perception and mastery of the technologies, which may change over time. It was seen that students' composing activities in computer-mediated environments in classroom communities are also situated socially as support from peers and teachers is similarly mediated by the digital technologies. Finally, it was noted that the physical aspects of computer-mediated environments might change over time as teachers restructure classroom environments. Having surveyed current understanding of the use of digital technologies to support composing as a part of a musical education, and having shown how this can transform students' composing processes, the following section demonstrates the gap in current understanding of secondary music students' compositional development in this context.

2.4. EXISTING MODELS OF COMPOSITIONAL DEVELOPMENT

A case has been made to support the notion that meaningful composing is central to a musical curriculum. Such composing involves the personal and the social, and is situated in a socio-cultural context. Digital technologies can give rise to computer-mediated environments that allow students to compose in meaningful ways transforming their composing process over time and thus fostering compositional development. Yet the literature suggests that this is not always achieved in the secondary classroom (Ross, 1995; 198; Gammon, 1996). One might expect that the situation had changed in the years since early reports were published. Yet more recent examiners' reports on the Edexcel GCSE music examination still indicate a worrying lack of opportunity for musical composing:

> There is also much evidence again of the continued practice of 'composing by numbers' or 'template compositions' where the teacher has dictated how each part of the composition is to be organised. This practice stifles creativity and potential and results in a series of unimaginative 'cloned' compositions. (Edexcel 2007 p. 9)

Thus, while composing is now a significant and practical experience for students of music in school, changes that have already been implemented do not seem to have stimulated the desired composing experience for students in all schools.

One possible reason for this is the gap in current understanding of secondary students' compositional development when working with computer-mediated environments in a classroom context. The following section outlines current understanding of creative and compositional development. A review of the frequently cited Swanwick and Tillman (1986) spiral of musical development illustrates the need to work towards a new understanding of compositional development.

2.4.1. Normative and Expert Models of Creative Development

Several researchers have offered models of individual creative development that are useful in the music classroom (Gardner, 1973; Ross, 1984; Gardner et al., 1990; Hargreaves and Galton, 1992). Gardner (1973) describes a progression which suggests that development is the exploration of a variety of symbolic forms and increasing skill in their use. This is also reflected in the Gardner, Phelps and Wolf (1990) model. However, the latter model tends more towards the possibility for inter-individual differences through the inclusion of a 'post-conventional' stage. The later model also allows for broader application while acknowledging the need for domain-specific knowledge. Ross's (1984) process of development is drawn from comparisons between art and drama. He identifies four age-related behavioural characteristics which

indicate an interaction with the social (concern for conventions) and cultural (engagement with medium). Hargreaves and Galton (1992) outline five stages of understanding that describe rather than explain the progression (Burnard, 2006b). Burnard demonstrates how many of these theories identify common developmental milestones (see Table 2.4) in artistic development (Gardner 1982), aesthetic development (Ross 1984) and individual listening and generative skills (Hargreaves and Galton 1992). All these models use similar labels to describe age-related changes and are in line with the notion that musical composing is an individual process that involves engagement with the artistic medium or culture.

Gardner (1973)	**Ross (1984)**	**Gardner, Phelps & Wolf (1990)**	**Hargreaves & Galton (1992)**
Free exploration	Sensory engagement with materials.	Pre-conventional	Sensorimotor: physical actions and sensory involvement.
Implicit musical understanding		Conventional	
	Musical doodling and assimilation.		Figural Phase: global representations feature.
			Schematic Phase dominated by cultural rules.
Distanced relationship/ reflection	Concern with musical conventions.		Rule systems: increasing mastery of the cultural codes.
	Personal style & embodied meaning.	Post-conventional	Professional Phase: mature understanding of artistic conventions; divergence and originality.

Table 2.4: General models of creativity (adapted from Burnard, 2006b and Koopman, 1995).

Hargreaves (2008) adds to this by drawing a distinction between normative and expert models or development. Normative models focus on changes that frequently occur within a given culture, a process called enculturation. More recently research has increasingly moved into constructing expert models through investigations of the environmental conditions which promote the development of specialist or expert skills. For example, Parncutt's (2006) work on prenatal development and Deliége and Sloboda's (1996) edited volume, which deals with common contextual influences on development in four phases of life: foetal, baby, childhood and school age. Three environmental factors appear to promote the development of musical skill across these four phases: parents, teachers and practice or rehearsal.

Hargreaves (2008) goes on to suggest that a false dichotomy exists between normative and expert notions of development. He suggests that normative development has been conflated with generalist music education and expert development similarly linked to specialist music education. Yet Hargreaves proposes that technological advancements and social attitudes

towards different musical styles are blurring the borderlines between these areas. He suggests that the dichotomy is overcome if, drawing on Sloboda (1991), we hold that becoming an 'expert' in socially defined ways is learning to relate intrinsic expertise to the social and cultural context in which the activity takes place. In other words, expert developmental progress is possible within a generalist music education. In the current study this is a crucial assertion as it has been seen above (2.3) that digital technologies provide the means to foster compositional development in music classrooms. There is no doubt from the literature discussed in Section 2.2 that expert development is possible for all students of music. However, Hargreaves's notion of 'intrinsic expertise' in music is at odds with the composing process described above. Students' composing process is constantly in tension with (Wertsch, 2002) the sociocultural historical context of the activity. In contrast, 'intrinsic expertise' implies a separation of the individual, social and cultural aspects of the process. Thus, as a point of departure, I propose a definition of composition development as: 'a personal process toward more expert activity that is historically located and occurs over time in tension with the sociocultural context in which composing takes place.

2.4.2. **The Swanwick and Tillman (1986) Spiral of Musical Development**

While there have been numerous models that have focused more specifically on musical development (Hargreaves, 1986; Hargreaves and Zimmerman, 1992; Runfola and Swanwick, 2002), the most widely referenced is Swanwick and Tillman's (1986) developmental spiral. Their model (see Figure 2.5) is based on 745 compositions and improvisations by 48 children, who engaged in a variety of tasks and contexts. It draws on earlier work by Swanwick (1979; 1983; 1988) that set out hierarchical educational objectives for music, which were later linked to Piagetian stages (Runfola and Swanwick 2002). These were skill acquisition (later materials), recognising and producing expressive gesture (later expression), identifying and displaying norms (later form) and aesthetic response (later value). Alongside this progression the Swanwick and Tillman spiral proposes a sequence of development that moves from early stages of mastery, through to imitation, imaginative play and, finally, metacognition. Within the spiral itself, the movement from sensory to manipulative, personal to vernacular, speculative to idiomatic and symbolic to systematic reflects the transformation from personal 'assimilation' (Piaget 1970) to an 'accomodatory' (Piaget 1970) social sharing in contrast to the intrapersonal interaction described above.

There have been several lengthy critiques of the Swanwick and Tillman model (Hargreaves and Zimmerman 1992; Koopman 1995; Barrett 1996; Runfola and Swanwick 2002). Before considering two issues that are of particular importance to this discussion, a key point is raised

by Pitts in her review of models of musical learning (Pitts 2005). She suggests that the main drawback of Swanwick and Tillman's spiral is that it seeks to close down debate. An examination of the Swanwick and Tillman model, together with the surrounding literature on music and compositional development, highlights the need for this debate to be reopened.

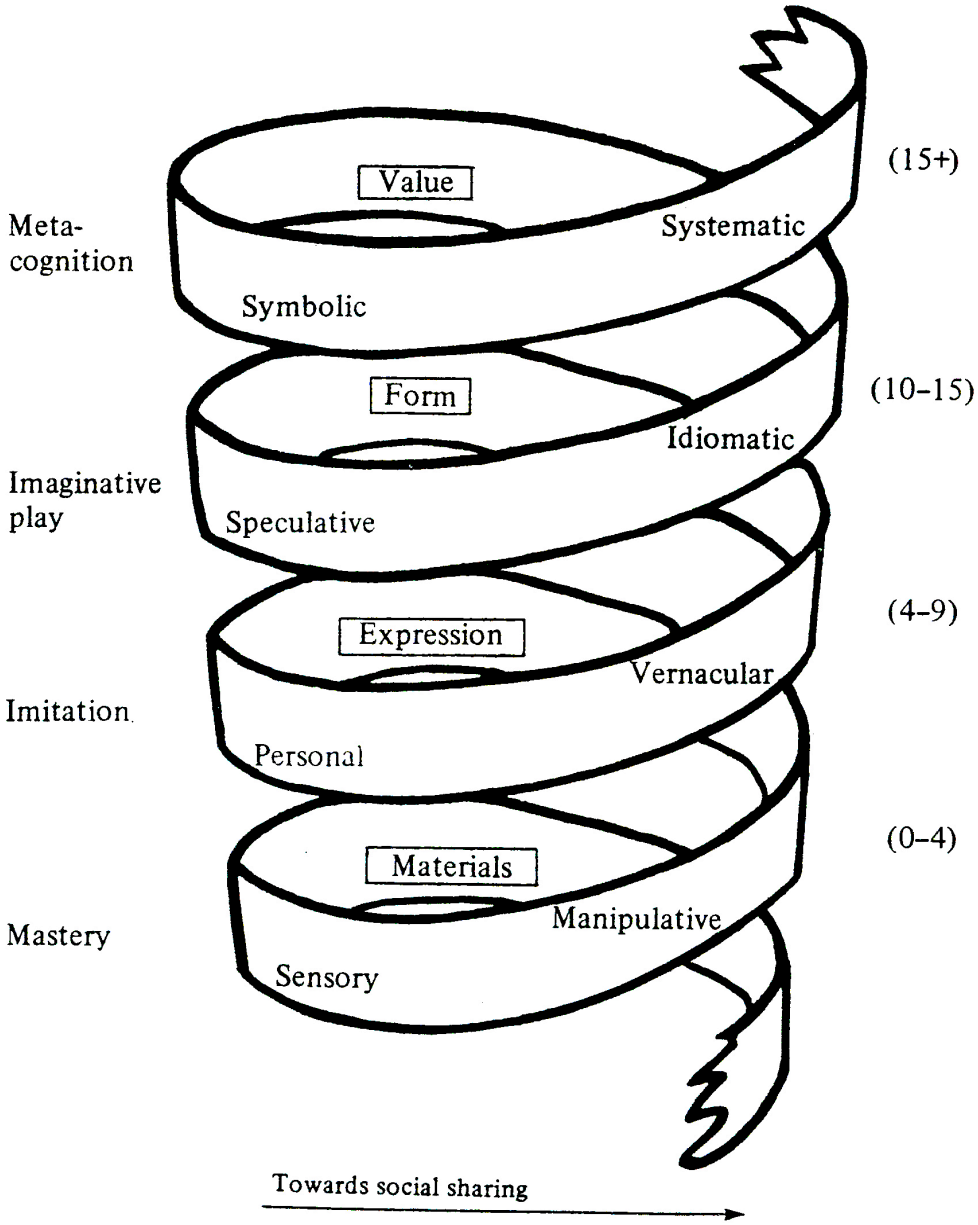

Figure 2.5: The Swanwick-Tillman spiral model of musical development (Swanwick and Tillman 1986).

Firstly, it should be noted that the Swanwick and Tillman spiral is a normative model that provides a helpful insight into the enculturation process. Yet the model was constructed in the UK before the introduction of the National Curriculum and was based on Tillman's empirical study of a single school in the UK, therefore generalisation is limited both temporally and geographically. Further research is needed to build an understanding of enculturation across wider UK society and in the light of curriculum changes.

Secondly, the Swanwick and Tillman (1986) model does not adequately address the transformational impact of artefacts in sociocultural contexts. The Swanwick and Tillman (1986) spiral suggests that students before the third stage of development are unable to identify and exhibit use of form. In a similar study based on the improvisations of children between the ages of 7 and 11, Kratus (1989, 1994b) reports that children under the age of 9 are unable to make use of repetition and development. However, Davies (1992) reports that alternation and repetition can be seen in the invented songs of children as young as 5. Davies' findings are also supported by Dowling (1988) and Pond (1981). Thus there is disagreement between the models (Burnard, 2006b) which Barrett (1995, 1996) proposes can only be accounted for if one considers external factors, such as the nature of the tasks and the composing environments. Swanwick (2001) agrees that there is an outstanding issue in relation to the cultural context of composing. It has been seen above that an individual's composing process is transformed into a more expert process over time through the mediational means of computer-mediated environments in classroom communities. Thus further study is needed to work towards a model that provides an account of progression and which relates to students composing with computer-mediated environments in classroom communities. The current study is designed to examine students' compositional development in this context.

Thus a thorough review of the literature did not reveal any models that address the transformational impact of the sociocultural context on students composing. Yet it was seen in Section 2.2 that the current literature on music education suggests computer-mediated environments in classroom communities offer the potential to transform compositional development. Thus the current study works towards a model of secondary music students' compositional development with computer-mediated environments in classroom communities.

2.5. TOWARDS MUSICAL COMPOSITIONAL DEVELOPMENT IN COMPUTER-MEDIATED ENVIRONMENTS.

Drawing on existing empirical literature, the following section presents ways in which composing strategies can be used to reveal secondary students' compositional development. It will be shown that this approach addresses the need to illuminate both personal composing processes and the mediational means with which they work and that may transform this process.

2.5.1. **Composing Strategies**

It was noted in Section 2.4 that one of the weaknesses of existing models of compositional development is that they are based only on the analysis of the products of composing. To give an account of the impact of environmental factors, models of compositional development must attend also to the process of composing over time. In order to gain an insight into compositional processes, research has moved into studies that investigate the structures and processes of composing, or students' 'composing strategies' (Scardamalia and Bereiter, 1987). In the composing literature 'strategy' is defined as "a plan involving significant decision-making moments for the overall composition" (Burnard and Younker 2002 p. 248), or an "explicit decision to use a certain way of working" (Fölkestad 1996 p. 132). Common to these is the notion of a 'decision'. Furthermore, the implication behind these definitions is that a strategy involves intentional action towards a product. A student may think about listening to their unfolding composition, but this only becomes a strategy when some action that results in its performance is carried out. Consequently, strategy in this study is also defined in relation to action. Therefore a 'composing strategy' is a decision to act in a particular way towards a goal, being distinguished from a chance event by its repeated use.

Types of Composing Strategy

One of the first studies of composing processes in a computer-mediated environment was that of Bamberger (1977). This investigation used musically untrained participants who were given pre-composed 'tune-blocks' and it led to the formation of two strategies. Formal strategies involve classifying and measuring. Figural strategies concern the grouping of events. More recently, Dillon (2003) studied the composing processes of secondary-aged students' composing collaboratively in a computer-mediated environment that allowed for the manipulation of pre-recorded musical phrases. She gives an account of strategies such as 'searching for', 'selecting', 'listening to' and 'collaboratively evaluating' samples[4]. These studies illustrate that qualitatively different strategies are used when composing in computer-mediated environments. Drawing on this therefore, the aim of the first research question (2.5.3) is to discover what qualitatively different strategies secondary music students employ when composing with computer-mediated environments in classroom communities.

[4] Samples are fragments of music that are pre-recorded for use in compositions.

Students' Use of Composing Strategies

Fölkestad (1996) suggests that students use the same strategies in qualitatively different ways. He describes vertical and horizontal ways of working. Vertical composers write small chunks in an integrated process, see the computer as an instrument and do not plan before the composing process begins. A horizontal approach sees composition and arrangement as separate activities and the computer as a tool. Several further studies also reveal students working in qualitatively different ways (Daignault, 1996; Burnard and Younker, 2002; Dillon, 2003; Burnard and Younker, 2004; Dillon, 2004a; Kirkman, 2007). The aim of the first research question in the current study therefore is also to discover how qualitatively different strategies are used by secondary music students when working with computer-mediated environments in classroom communities.

2.5.2. Compositional Development and Strategy Use

Having drawn on the literature to suggest that individual students employ qualitatively different strategies when composing, I will now attend to the literature which uses strategies to provide an insight into changes in students' ways of working.

Progression: Strategy Type

Seddon and O'Neill (2003) investigated the influence of instrumental music training on the compositional processes of secondary students in a computer-mediated environment. They describe three discrete strategies or 'meta-approaches', identified by their differing use of exploratory and rehearsal activities. They found students who had previously received at least two years of formal instrumental musical training were more likely to display 'crafting' approaches which demonstrate a greater focus on rehearsal and construction activities (p.131). In a complementary study, Webster (2003a) discusses the creative processes of professional composers in relation to Wallas's (1926) model (above). He suggests that a greater emphasis on 'reflection' is indicative of a more expert process. Collins (2005) also examines the composing process of a professional composer working in a computer-mediated environment. He presents instances of "gestalt like restructuring" as significant moments in the "solution-generating activity" (p. 21). This process of restructuring can be likened to Seddon and O'Neill's 'crafting' and Webster's 'reflection' strategies. Each involves some consideration of the developing product and results in modification of either or both task parameters and the evolving composition. Finally, Burnard and Younker (2002; 2004) present six different composing 'pathways', which describe students' use of strategies as they move through stages in the creative process. The pathways reveal progression from simplest to most sophisticated through

increasing interplay between problem-finding and -solving types of strategies which employ divergent and convergent types of thinking (Webster 2003a). Together these studies suggest that compositional development can be seen as changes in the nature of the composing strategies employed. Thus the first aim of question three is to determine qualitative changes in the nature of the composing strategies students employ when working with computer-mediated environments.

Progression: Strategy Use

A further aspect of students' strategy uses, which can illuminate their development, are their changing descriptions of their ways of working. The literature draws a distinction between strategies that students articulate and those that are used but not articulated (Sloboda, 1985 p.118). The idea that knowledge cannot always be articulated is supported by Schön's assertion, "Often we cannot say what it is that we know" (1983 p. 49). Schön argues that as experience is often non-verbal, we are only able to communicate simple versions of it using concepts developed through a process that is not explicitly conscious. This distinction can be likened to Anderson's (1983) declarative and procedural knowledge. Declarative knowledge, or knowledge about, is easily articulated and, in Anderson's view, typically defines the processes of novices when acquiring complex human skills. Procedural knowledge, or knowledge how, guides action and decision-making but lies outside that which can be easily described (Reber 1993). Anderson regards procedural knowledge as indicative of a more expert process. Yet while implicit knowledge may be an important aspect of the composing process, it is also possible that students may make active decisions to use particular strategies but, when questioned, be unable to explicate their use due to the need for metacognitive support (Flavell 1999). At the same time, experts are likely to have a better grasp of the concepts that underpin their areas of proficiency and would therefore have the language to attempt a description of what they were doing and why. In the light of these different positions it can be seen that adopting 'procedural knowledge' as a measure of expertise is problematic. However, it is sufficient for the current study to note that changes in the strategies students articulate and their ability to explain why they were working in a particular way are likely to indicate a developmental shift.

A final consideration is the need to account for mediational means (Wertsch 1998) in the composing environment, which may lead to students' strategies being adopted as a result of the technology or other aspects of the environment (Wartofsky 1973). For example, students may employ a strategy of reflection to restructure a developing composition as a result of a screen display which allows the structure of the whole piece to be seen through boxes that represent

musical ideas. This is not to say that the same strategies may not also be used consciously. In addition, strategies may be employed as a result of teacher interventions. Thus, rather than the focus being solely on the articulation of a strategy, the intention behind the action and use of suitable strategies in appropriate ways is a paramount consideration. The active selection of strategies by students places their agency (Flutter & Rudduck, 2004) at the forefront of the action. Furthermore the selection of suitable strategies in appropriate ways, acknowledges change while still recognising that their composing process is located in a particular sociocultural context. This emphasises the need in question two to ask students why their strategies are used. Following on from this, the second aim of question three is to reveal qualitative changes in the *use* of composing strategies by secondary music students.

In summary, therefore, the current study takes qualitative changes in students' ways of working, made visible through their strategy use and articulation, as an indication of their changing compositional processes. In this way, composing strategies provide a method of accounting for the compositional development of individual secondary students working with computer-mediated environments in musical secondary classroom communities.

2.5.3. **Summary and Research Questions**

I have argued that composing is a central aspect of a musical education. In this context composing is a creative process involving interactions between an individual, the developing composition and the environment, which includes both the social and cultural context of composing. I have demonstrated from the literature that digital technologies present many opportunities to support composing in musical secondary classrooms. These technologies mediate the composing processes of students by presenting affordances and imposing constraints that can guide and shape students' ways of working. A review of current models of creative and compositional development indicates an emphasis on normative aspects of music education and a corresponding lack of attention to individual skill development and the sociocultural context of composing. Thus the case is made in the current study for research that works towards a more 'musical' understanding of compositional development, which attends to the individual nature of the composing process and more fully addresses the sociocultural context of composing. Therefore the central research question asks: How does the compositional development of secondary music students proceed when working with computer-mediated environments over time in a classroom community?

In Sections 2.4 - 2.5 it was suggested that the literature supports using students' composing strategies as a means to address the social aspects of a meaningful composing process, while still acknowledging the individual nature of the composing process. Thus the research

questions ask: 1) What qualitatively different composing strategies are observed when secondary music students compose with computer-mediated environments in classroom communities, and how are they used? 2) What qualitatively different composing strategies do secondary music students articulate as part of their process of composing with computer-mediated environments in classroom communities, and why are they used? These are brought together in a final research question, which seeks to map changes in students' composing processes over time: 3) What, if any, are the qualitative changes in the nature and use of the composing strategies employed by secondary music students working with computer-mediated environments over time and in classroom communities**?** The following section moves on to explain how the research will be carried out.

3. RESEARCH FOUNDATIONS

Recent literature on the nature and development of educational inquiry increasingly recognises the need for researchers to present an explication of the assumptions that underpin their work (Burnard 2006a). Any researcher necessarily approaches their task from a particular perspective or worldview. While this cannot be avoided, it is in the interests of open scholarship and dialogue that every effort be made to clarify the foundations upon which a piece of research is built. To aid in this process, the following section adopts a framework proposed by Crotty (2005), which describes four elements that are key features of any research perspective: epistemology, theoretical perspective, methodology and methods. The review of the methods and tools for data collection, and discussion of issues of credibility then lead to an examination of the research plan. The research questions are reviewed in preparation for this discussion.

3.1. THE RESEARCH AGENDA: UNPACKING THE RESEARCH QUESTIONS

In chapter one, I introduced my personal background, and a challenge I faced as a music teacher, namely, 'how to implement a musical curriculum at GCSE'. From the research I argued that digital technologies *can* assist in the promotion of a student's compositional development within such a curriculum. The literature suggests that distinct computer-mediated environments offer opportunities and introduce constraints that can help to guide the different composing processes of individual students. However, I argued that the gap in current understanding of 'musical' compositional development results in a failure to realise this potential. The research questions in the current study were designed to address this gap, which is highlighted by the main research question: How does the compositional development of secondary music students proceed when working with computer-mediated environments, over time in a classroom community?

3.1.1. Paradigms and Research Traditions

Before presenting the case for adopting a constructionist epistemology, I will outline my understanding of the terms employed in the current study.

In Crotty's (2005) framework for grounding a research perspective, he presents a diagram (Figure 3.1) which illustrates the relationships between the different elements that form an approach to the research process. *Epistemology* is the study of the foundation of knowledge: "how we know what we know" (Moser, 2002 p. 8), in this case constructionism (3.1.2).

Epistemological assumptions provide a basis for meaningful action; they allow knowledge claims to be made (Pring, 2000). A *theoretical perspective* is a way of viewing the world or the philosophical context of the process of research (symbolic interactionism - 3.1.3). *Methodology,* is the strategy or process lying behind a choice of methods. A methodology can also be thought of as a research design that links a theoretical perspective with the practices or *methods* used to gather and analyse data. The methodology in the present study is ethnography (3.1.4)

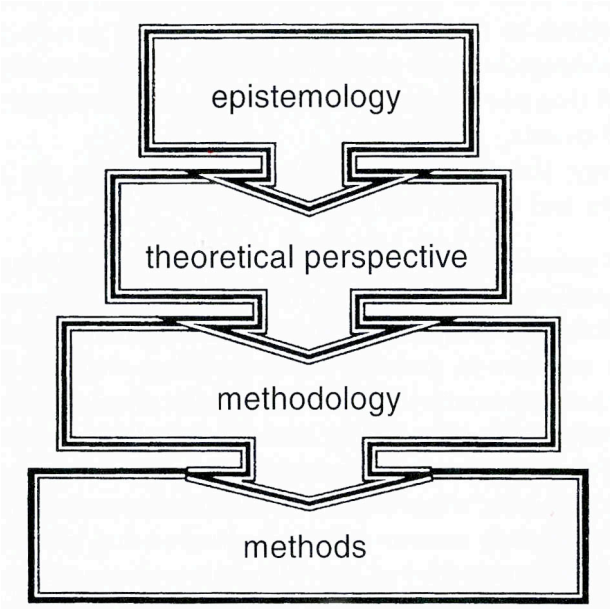

Figure 3.1: Basic elements of the research process (Crotty, 2005 p4).

Yet, Crotty's (2005) illustration leaves out one key aspect of the research process. Ontology is the study of 'what is': the nature of existence or the structure of reality. Instead this issue is sidestepped with the assertion that ontological issues can be dealt with separately from discussions of the research process. It would seem that ontology is not a basic element of Crotty's (2005) research process. In contrast, I would argue that research can not proceed without an ontological foundation. For example, we cannot think about 'how we can come to know' about musical compositional development until we make a case for such a thing as 'compositional development'. Thus, ontological assumptions underpin any research process. In the current study, such assumptions have been addressed by grounding concepts central to the current study such as 'musical composition', 'computer-mediated environments', 'compositional development' and 'strategies' in related literature (chapter 2). Figure 3.2 illustrates the basic elements of the current research process or the way it approaches the world.

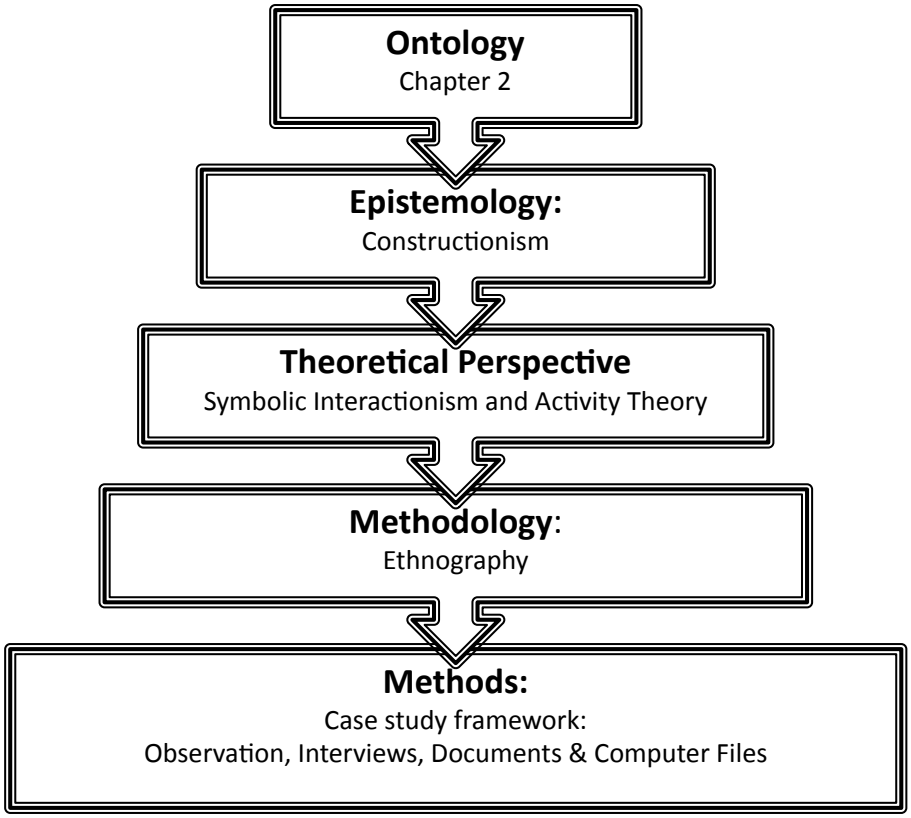

Figure 3.2: Basic elements of the current research process (modified from Crotty, 2005).

In an attempt to describe the way in which such a 'world view' or a 'general perspective' shapes the process of research, Kuhn (1962) introduced the notion of a 'paradigm'. In current literature, the term 'paradigm' frequently refers to research communities and the problems and methods they share (Shulman, 1986; Guba, 1990; Denzin and Lincoln, 2000; Lincoln and Guba, 2000). While these paradigms can be seen as competing or incommensurable, Walker and Evers (1997) suggest that the practical nature of the problems addressed in educational research means that the suitability of different paradigms can be assessed by examining their ability to address the research questions. Working from this perspective, the following section presents my rationale for adopting a constructionist epistemology based upon its ability to address the needs of the research questions.

3.1.2. A Constructionist Epistemology

Different epistemological positions fall broadly into three groups: subjectivism, objectivism and constructionism (Crotty, 2005). Subjectivism holds that meaning finds its origins in the individual; that is to say, the object (that outside the individual) plays no part in the construction of meaning (Cohen al., 2000; Denzin and Lincoln, 2000). In contrast, objectivism suggests that reality exists apart from individual experience of it; an object in the world has meaning outside of any perception of it (Cohen et al., 2000). However, the notion of 'musical'

education presented in chapter 2 seeks to foster meaningful learning through practical activities. This demonstrates that constructionism underpins the current research. Constructionism holds that:

> …all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context (Crotty, 2005 p42).

In other words, constructionism suggests that meaning is constructed through interaction between subject and object within a social context. The questions in the current research are underpinned by the assumption that students are agents in their own learning; to learn musically they must actively engage with music (2.1). The constructionist notion that meaning is actively constructed through interaction between students and their world (in this case the classroom), is therefore compatible with the research questions.

A second assumption in the current study is that culture has a hold on this experience, of which students may not be aware and which must be observed. To underline this distinction, constructionism can be contrasted with constructivism, which while acknowledging the validity of an individual's experience and sense of the world, does not account for the hold culture has upon this experience. In contrast, a constructionist epistemology emphasises the need for a critical approach to knowledge. To investigate compositional development in computer-mediated environments is also to imply that digital technologies within a classroom environment have an impact on their development. Thus, constructionism provided a suitable epistemology due to its support for the notion that meaning is constructed through interaction; the need to acknowledge individuality of experience; and the need critically to account for cultural interactions that may not be perceived.

3.1.3. **An Interpretive Theoretical Perspective:**

A theoretical perspective is understood in the present context to be a lens through which to view the world (Crotty, 2005). Having presented the constructionist epistemology implied by the research questions, the following section reviews the case for adopting an interpretive theoretical perspective informed by symbolic interactionism and activity theory.

It has been seen that the constructionist perspective of the current study emphasised the need to acknowledge students' individual experiences. The research questions also indicated the need to gain an insight into students' understanding. While phenomenology, which is concerned with the meaning of personal experience (Parker, 1998) allows for this, it sees behaviour as determined by experience rather than by external reality (English and English, 1958). Consequently, this approach was unsuitable due to the need to address the impact of the external reality of computer-mediated environments on student development. Another

interpretive lens is hermeneutics. This approach attempts to reconstruct original meanings of authors from the analysis of documents (Redding, 1996). In the current study, students may have been unable to articulate their strategy use (Polanyi, 1967) and may have been unaware of the constraints imposed by the technologies they employ. Thus the present study required that attention be paid to more than just the participants' views. Neither phenomenology nor hermeneutics would have addressed this issue.

Symbolic Interactionism With Activity Theory

A further interpretive perspective is symbolic interactionism, which traces its origins to the work of Mead (1939; 2001) and Blumer (1969). Its three main assumptions state that:

- Human beings act toward things on the basis of the meanings they ascribe to those things.
- The meaning of such things is derived from, or arises out of, the social interaction that one has with others and the society.
- These meanings are handled in, and modified through, an interpretive process by the person in dealing with the things he/she encounters. (Blumer, 1969 p. 2)

In chapter 2 it was seen that students compose on the basis of the opportunities for action they perceive. In turn, the opportunities they perceive arise out of the social and cultural context of the classroom and from their personal historical experience (2.2). These opportunities are handled and modified by students when composing with digital technologies (2.3).

Symbolic interactionism places the focus on 'meaning' in the context of a student's lived environment (Benzies and Allen, 2001). In the current study 'meaning' refers to the notion of composing, while compositional development is viewed as qualitative changes in the activity of composing. Thus the focus of the research is on changes in this meaning rather than the meaning itself. Symbolic interactionism also focuses on thoughts and ideas (Fetterman, 1998) interpreted by individuals (students) through the use of symbols during interactions (Benzies and Allen, 2001). As a consequence of the different possible interpretations, symbolic interactionism asserts that the researcher must take the role of the actor and view the situation as they see it (Psathas, 1973).

Due to the need to see from the students' perspectives, symbolic interactionism is open to criticism on methodological grounds, namely for operating from the naïve assumption that the meanings students attribute to their composing process can be taken at face value (Mitchell, 1977; Denzin, 1978). The present research addressed these issues in two ways. Firstly, more recent applications of the symbolic interactionist perspective acknowledge the tension between students as agents in their own compositional development and the constraints imposed by the social and cultural conditions in which they work. This has been previously discussed in Section 2.2. As Charon (2001) notes:

> action is not always directed by the self…alternatives are nonconscious action and habit…A society – or a social world – may be so important to us that its perspective not only becomes a guide to situations but actually shapes our action, determines our definition almost like a habitual response. (p.205)

It has been seen that cultural tools (currently digital technologies) are inherently social, in that they represent behaviour and shape our view of reality (2.3). The presence of teacher interventions and computer-mediated environments calls for a theoretical perspective which acknowledges the impact of such elements on students' developing composing process. Charon's (2001) construction of symbolic interactionism recognises that students' articulation of their own compositional development should not be accepted without addressing the existence of habitual actions that may arise from the sociocultural context of composing. Thus Charon's more recent construction of the symbolic interactionist perspective was adopted as it addresses methodological criticisms by acknowledging that external factors impact on students' changing composing actions over time. Such an approach was seen to be compatible with the current research questions.

Secondly, the current study addressed criticisms of symbolic interactionism by adopting activity theory (Wertsch, 1998) as a complementary sociocultural lens. Wertsch's version of activity theory takes "mediated action as the unit of analysis" (Wertsch, 2002 p. 11) and therefore acknowledges the impact of cultural tools, in this case digital technologies. It also recognises that activity is situated in its particular sociocultural setting; in this case musical classroom communities (2.3). Thus, adopting the complementary lens of activity theory allowed the focus to alternate between the meaning of a student's music, and changes in their mediated actions of composing. This meets the needs of the present research as it focuses on individual students' compositional development. Such a shift towards mediated action permits the identification of three interacting contexts: social, personal and cultural, which "weave together" (Cole, 1996 p. 135) classroom composing activity and allow us to delineate between:

- Teachers' pedagogic practices that structure the composing activities - the social context;
- Actions that are carried out consciously with mediational means and which place students as agents in their own developing composing process - personal student agency;
- Operations that are carried out automatically and may be constrained by habit or aspects of the cultural context such as constraints of digital technologies - the cultural context.

In each case these are historically located: student agency may transform actions into operations through a process of automation or habitualisation (Kuutti, 1996). Furthermore, pedagogic practice can be transformed by students' agency as they participate in classroom practice (2.4). Finally, pedagogic practice also impacts upon students' compositional development as the

tasks, roles and structures that guide classroom activity, over time, constrain and foster certain ways of working (2.5). These contexts are illustrated in Table 3.1.

Context	Example
Social	Meaningful music making; composing to foster compositional development. For example, composing a piece of music about 'freedom'.
Personal	A decision to act in a particular way towards a goal. For example, actively choosing to use the 'edit' screen in a piece of software to modify the dynamics of their piece, as this screen affords a greater level of detail about the dynamics of their developing piece.
Cultural	Working with digital technologies without thinking, problem solving or actively making choices. For example, using a mouse to enter information into the computer because that is the affordance they perceive that allows them to add notes to their piece.

Table 3.1: Three contexts of composing.

One of the first examples of a sociocultural study of secondary-aged music students interacting with technologies is reported in Fölkestad et al. (1998). They describe the computer equipment used in the study as a "medium which facilitates music-making itself" (p99). He reports six qualitatively different approaches to composing with the technology. In a later school-based study, Espeland (2003) notes the dynamic relationship between the musical and social aspects of composing with cultural tools. Barrett (2005) employs a sociocultural approach to consider children's musical communication and communities of practice. She suggests that further research is needed to understand the ways in which student communities intersect with those of adults and cites the use of technology as a way in which this intersection occurs (p269). Gall and Breeze's (2008) previously mentioned study employs a sociocultural approach to examine students' compositional collaborations and demonstrates students using digital technologies to negotiate creative outcomes.

Adopting the complementary lenses of symbolic interactionism and activity theory finds support in the work of Star (1996) and Ashwin (2009) who discuss their usefulness for examining teaching and learning interactions. Of particular importance is Star's assertion that understanding is simultaneously dynamic and local, or put in other terms both situations and objects develop together. She proposes activity theory (Engestrom, 1987) as a means of locating the object, in this case composing understood through the lens of symbolic interactionism, within the systemic whole. Having discussed the merits of symbolic interactionism and activity theory in a similar way Ashwin (2009), perhaps in contrast, moves on to caution against combining the two approaches as an oversimplification of a complex interaction. While it is true that adopting these two approaches is not unproblematic, the exploratory, small scale, collaborative and in-depth nature of the current study together with the methodology and

approach discussed below demonstrate that both approaches can be adopted concurrently. While symbolic interactionism allowed the researcher to view the students' identities as these relate to their compositional development, activity theory permitted these to be located within a series of interactions which wove together the context (Cole, 1996). Thus an approach which employed both symbolic interactionism and activity theory was adopted allowing action to be considered alongside meaning as the basic units of analysis. This addressed all students' compositional acts (what they do) and their meanings (why they do it) and thus met the needs of the research questions. In this way the current study attended both to personal and to sociocultural aspects of compositional development.

3.1.4. **Ethnographic Methodology**

Having outlined the constructionist epistemology of the current study and having presented symbolic interactionism with activity theory as paired theoretical lenses, a methodology which draws on ethnography is introduced, having been selected as the most appropriate to address the needs of the research questions.

O'Reilly (2005) presents a helpful definition, asserting that ethnographic methodologies draw on a family of methods and involve sustained contact with individuals in the context of their daily lives. The origins of ethnographic methodologies lie in anthropology and its concern for culture, in-depth examination and cross-cultural comparison (Nettl, 1983). It is a widely used methodology in educational research (LeCompte and Preissle, 1993; Della Pietra and Campbell, 1995; Carbon, 1998; Tsisserev, 1998) and when working within symbolic interactionism (Psathas, 1973; Prus, 1996; Charmaz and Mitchell, 2001; Crotty, 2005). Indeed, Crotty observes that it is not surprising that ethnography is widely used as a methodology within symbolic interactionism because of its emphasis on seeing from another's perspective. It is ideally suited to this purpose because it is concerned with real-life contexts, (Fetterman, 1998). The literature contains many discussions of the strengths of employing ethnographic methodologies with regard to their ability to provide rich insights into actual practice across the fieldwork (Tan, et al., 2003). Thus it was decided that a methodology which drew on ethnography would be ideally suited to the present study, which approaches knowledge from an interpretive perspective and is concerned with development in real life contexts.

Perhaps the most important of the issues faced by ethnographic work is the outsider-insider dilemma. Other researchers (for example Nettle, 1983) describe this as an emic (insider)/etic (outsider) dichotomy. While understandings of this dilemma differ between researchers for the purposes of this study it is helpful to understand 'emic' or 'insider' in terms of the accounts,

descriptions and categories considered meaningful by the members of a culture: in this case the students and their teachers. In contrast 'etic', or 'outsider', highlights the perspective of the researcher which drew on existing theories, concepts and perspectives to support the process of analysis and theorisation. Harris (1968) summarises the interaction between these as one between researcher and participant:

> Etic statements are verified when independent observers using similar operations agree that a given event has occurred…emic statements refer to systems whose things are built up out of contrast and discriminations significant, meaningful, real, accurate [to] the actors themselves. (p. 571/575)

The current study addressed this issue through the concurrent use of symbolic interactionism, which emphasises 'the meaningful' from the perspective of the insider, and activity theory, which employs 'a priori' theory to understand the context in which composing takes place. It may be argued that ethnography places the emphasis on the insider's perspective (Fetterman, 1998 p.5). Yet, as an outsider to a participant's experience, the researcher can never fully realise an understanding of their perspective. The current study attended to this tension by understanding ethnography in a wider sense: as a methodology which promotes attention to the depth and complexity of a social situation (Jeffery and Truman 2004) and which emphasises thick description and work over time (Geertz, 1994). In adopting this methodology I aimed to construct a detailed and critical picture of participants' contexts and experiences alongside a representation of the their own view of their world (Hammersley and Atkinson, 1983).

A further weakness of ethnographic studies, raised by Tan et al. (2003), is that many studies lack conceptual depth and the huge amounts of disconnected data can result in researchers becoming overwhelmed (Hammersley, 1992; Charmaz and Mitchell, 2001). To combat the potential for these issues, the framework proposed by Tan et al (2003) was adapted for use in the present study and is presented in Table 3.2. As well as acknowledging the importance of the previous discussion, the stages outlined in the Table (research design, data collection and analysis, and ethnographic account) form the framework for the subsequent discussion of how the ethnographic methodology employed in the present study governed the research design.

Research stage	Guiding principle	Description of Principles	Section
Research design	Compatibility of research questions with symbolic interactionist lens	Focus on symbolic and emergent aspects of computer-mediated environments and compositional development. Account for multiplicity of meaning and mediation of interpretation.	3.1
	Selection of appropriate site (Gopal & Prasad, 2000)	Conduct research with multiple students in 'real-life' classroom context.	3.2, 4
Data collection and analysis	Immersion (Charmaz & Mitchell, 2001; Gopal & Prasad 2000; Werner & Schoepfle, 1987)	Lengthy observation periods and intense contact with students and staff Focus on the details of interaction through which students create local realities. Descriptive, selective, focused observation	3.3/3.4, 4, 5, 6
	Interpretive field research (Klein & Myers, 1999)	Hermeneutic circle, contextualisation, Interaction between researcher and students/staff, dialogical reasoning, Multiple interpretations, suspicion.	3.1/3.3 /3.5, 4, 5, 6
	Constant Comparisons (Charmaz & Mitchell, 2001; Emerson et al. 1995; Locke 2001)	Coding, comparing and memo-making moving from descriptive to focused Integrating categories and their properties – moving from focused to selective observation.	3.5, 4, 5, 6
Ethnography account	Thick description (Geertz, 1973; Gopal & Prasad, 2000)	Present the implications of findings while telling a story relevant to the students rather than the researcher.	3.3/3.4, 4, 5, 6
	Credibility, reliability, validity (Golden-Biddle & Locke, 1993; Cohen et al. 2000)	Demonstrate that the research is immersed in the field. Present findings as relevant to common concerns of the reader. Move readers to examine their own assumptions.	3.4, 4, 5, 6
	Confessional (Schultze, 2000)	Self-revealing writing with both actual and confessional content to demonstrate how rigour is achieved.	1.1 4, 5, 6, 7

Table 3.2: Principles for conducing symbolic interactionist ethnography.

3.2. MULTIPLE CASE STUDY APPROACH

I have presented the case for a constructionist epistemology, a theoretical perspective from symbolic interactionism and an ethnographic methodology as appropriate foundations upon which to build a research design that addresses the needs of the research questions. The following section moves the discussion forward into an exposition of the case study research approach adopted in the current study, outlines the rationale for my choice of instruments for data collection, discusses credibility and ethics, and presents the equipment used.

Case study is a method (Stake, 2002) of conducting research that recognises context as a key determinant of action (Sturman, 1997). Gillham defines the case as embedded in the real world, studied in context and existing in the present so that the boundaries between case and context are difficult to define (Gillham, 2000). Thus a case study strategy seeks to understand a specific instance (the case) in its real context, when there are multifarious factors and the interaction

between them is important (Sturman, 1997). In the current context a case study strategy was an appropriate choice as the research questions focus on understanding students compositional development in computer-mediated environments.

Several different types of case study are evident in the literature (Stenhouse, 1988; Sturman, 1997; Stake, 2002). Table 3.3 shows three different types of case study suggested by Stake (2002) alongside their advantages and examples from the literature. As the focus of the current study is on developing an understanding of the phenomenon of compositional development, the focus is not on an individual case but on a wider issue: the impact of contrasting computer-mediated environments on this development. A multiple case study approach was therefore adopted as it more readily focused on compositional development.

Type	**Use**	**Advantages**	**Research examples**
Intrinsic	Undertaken because the particular instance being studied is deemed important.	Allows for greater depth of understanding about an individual case	Reitman (1965), Peshkin (1986)
Instrumental	A single case is studied in depth with a view to the understanding of a wider issue.	Allows for greater depth of understanding about an issue	Collins (2005), Sloboda (1985), Jennings (2005)
Multiple	Employed to investigate a phenomenon. Chosen to achieve a better understanding about a wider collection of cases.	Allows for depth and greater breadth of understanding about an issue.	Kennedy (1999), Connell (1985)

Table 3.3: Different types of case study.

3.2.1. **The Cases**

Case study involves the detailed examination of a 'bounded system' (Stake, 2002), which can be bounded in a variety of ways, such as by the school, the class, the student or by time and place. The research questions in the present study call for the investigation of multiple music students in multiple classroom communities. Section 2.1 outlines the assumption in the present study that compositional development is an individual progression, thus it was decided that the bounded system in the present study would be the individual student. The advantages of bounding the cases in this way are that it allowed the students' strategy use to be examined in detail and it allowed comparisons to be made between cases. Disadvantages included the volume of data involved in understanding the individual context of each student and the risk of students withdrawing from the study. To minimise the volume of contextual data required, three cases were initially chosen from a classroom community, with a further reduction to two during the analysis. This guarded against attrition and allowed the most contrasting cases to be

selected. In addition the constraints of the current study and the level of detail required to examine a student's individual development precluded the use of a larger sample size. Smith suggests that cases may also be bounded by their spatial and temporal locations (Stake, 1995). The limitations in the present study imposed by the time-frame and financing suggested that a temporal characterisation of each case would also be appropriate. Therefore the cases in the present study were also bounded within the time-frame laid out in Section 3.4.

3.2.2. **Selection of the Cases**

One of the critical issues highlighted by the literature is the selection of the case or cases (Merriam, 1988; Gillham, 2000; Stake, 2002; Yin, 2003). To achieve the greatest understanding multiple case studies require the participants to be chosen (Patton, 1990; Yin, 2003). The cases in the current study were purposively sampled using a criterion-based strategy (Miles and Huberman, 1994). This means that they were chosen according to pre-set criteria that address the specific needs of the present study.

The criteria for the selection of site were as follows. Firstly, the research questions call for the study of students' musical compositional development in computer-mediated environments in classroom communities. Therefore the site had to use computer-mediated environments as part of a 'musical' approach to classroom composing. It was preferable for the site to employ a range of different digital technologies as this would more readily give rise to distinct computer-mediated environments. Secondly, the research questions ask for the investigation of music students. Thus the site needed to contain secondary music classrooms and the cases had to be music students. Thirdly, the students needed to have access to good-quality digital technologies in the music classroom that could be used during composing activities. The requirement for good-quality digital technologies represents an effort to minimise technical issues that may have impeded the research. Finally, the time and financial limitations of the current research dictated that the site needed to be within reasonable travelling distance of the researcher's home.

The individual cases were selected using a similar criterion-based strategy. Firstly, the individual cases had to be music students. Secondly, the cases required parental consent and needed to be willing to participate as researchers of their own composing processes. Thirdly, the cases had to regularly employ digital technologies as part of the composing activities in their music class. Fourthly, the cases were chosen in discussion with their class teacher and with the approval of the head of department. Fifthly, in an effort to minimise attrition and maximise the likelihood of discovering compositional development, students committed to the research were sought. Finally, a mix of informally trained, formally trained and untrained

instrumentalists were be sought in an effort to achieve variation in the mode of interaction (Nilsson and Fölkestad, 2005; Kirkman, 2007).

As a result of this process Sam, Emily and Chris were chosen as suitable initial cases. All of the students were selected from a GCSE music class, which fulfilled the first criterion. After interviewing several students and speaking with the class teacher each of the three were keen to be involved and brought back reply slips obtaining initial parental permission from their involvement. At the selected site, the GCSE class all regularly employed digital technologies as part of their composing processes and both class teacher and the head of department approved their selection. From several possible student cases, Sam was chosen due to the breadth of his musical interests and his willingness to try out musical instruments on which he had no training. Emily was selected as she had some formal training on the piano as well as a keen interest in composing outside school. Chris was chosen due to his informal training on the drums and his practical approach to music making. Following further conversations with Sam, Emily and Chris, they demonstrated a commitment to the research through their attendance at a meeting in their free time and by returning the relevant paperwork (see 3.4).

When narrowing the sample of cases during the analysis process, it was decided to focus on the stories of Sam and Emily as, once the stories began to emerge, several similarities were identified between the experiences of Sam and Chris. For example, both appeared to have quite an exploratory approach to music making. Both Sam and Chris had a significant amount of informal music making experience with friends outside school. In addition, it emerged that Chris also had taken percussion lessons in a formal sense and so shared aspects in common with Emily's story. For these reasons it was felt that the two most contrasting cases were Sam and Emily. Thus, with the agreement of all three students, Sam and Emily were selected as being the most likely to present contrasting stories.

3.2.3. **Participation and Ethics**

As this research project is concerned with minors, informed consent was needed from the students involved, their parents and the school. An outline of the proposed study and a covering letter was given to each stakeholder requiring a signature to confirm acceptance of the research. Furthermore, the letter made clear that at any point during the research students were free to withdraw from the study. Ethics are further discussed in Section 3.4.4.

3.2.4. **Summary**

The research strategy adopted in the present study was a multiple case study at a single school, bounded by individual students (Stake 2002). The site and cases were purposively sampled using a criterion-based strategy (Miles and Huberman 1994) and informed consent from all stakeholders was required.

3.3. TOOLS FOR DATA COLLECTION

Together with the research questions, the ethnographic methodology and multiple case study method employed in the present study required the use of qualitative participatory methods. These allowed access to students' and teachers' views and addressed the need for breadth as well as depth. Adopting such an array of methods was seen to be consistent with an interactional ethnographic perspective (SBCDG, 1992a; 1992b; Green and Dixon, 1993; Souza Lima, 1995; Wolcott, 1999; Rex 2004; Green et al., 2007) and built upon existing investigations of music students working in computer-mediated environments. (Savage and Challis, 2001; Seddon and O'Neill, 2003; Burnard and Younker, 2004; Jennings, 2005; Seddon, 2006; Brown and Dillon, 2007; Dillon, 2007; Gall and Breeze, 2008; Hargreaves, 2008; Hewitt, 2008; Sawyer, 2008).

Table 3.4 maps the tools employed in the present study to the research questions (Figure 3.3) introduced in Section 2.5.3. In this way a direct link was made between the method of data collection and the specific needs of each question. These are explored in turn under the general headings of participant observation, interview, documents and computer-files.

		Methods								
		Participant observation				Interview			Documents & computer files	
		Synchronous video			Field journal	Open		Individual semi-structured	Student digital portfolio	Site digital portfolio
		Class video	Screen video	Student mic		Teacher	Student VSR			
Questions	1									
	2									
	3	Over time					Over time		Over time	

Table 3.4: Mapping of research questions to family of methods

Figure 3.3: The research questions:

How does the compositional development of secondary music students proceed when working with computer-mediated environments, over time in a classroom community?

1) What qualitatively different composing strategies are observed, when secondary music students compose with computer-mediated environments in classroom communities, and how are they used?

2) What qualitatively different composing strategies do secondary music students articulate as part of their process of composing with computer-mediated environments in classroom communities, and why are they used?

3) What, if any, are the qualitative changes in the nature and use of the composing strategies employed by secondary music students working with computer-mediated environments, over time and in classroom communities?

3.3.1. **Participant Observation**

Whilst some studies, of students' compositional development (Swanwick and Tillman, 1986; Kratus, 1989), have employed a 'complete observer' observation strategy, this can create an excessively 'artificial' environment and is not congruent with an ethnographic methodology. It has been noted (3.1) that within interpretive ethnography, the researcher must work alongside the researched community to develop a common basis of experience and trust. In the case study strategy employed in the present study, this facilitated the realisation of rich insights both into the lives of the individual cases and the classroom communities as a whole. The method of participant observation is congruent with this strategy (Hammersley and Atkinson, 1983) and thus was also seen to flow naturally from both the methodology and the needs of the research questions in the current study.

This approach finds support from the music education literature. For example, Savage and Challis (2001) used participant observation in a study of the collaborative processes of secondary students in computer-mediated environments. In an earlier study of the individual composing processes of secondary-aged students, Fölkestad (1996) also used participant observation to gain insights into a student's use of composing strategies. Table 3.5 demonstrates that there are both advantages and disadvantages to each method of observation. However in the current study using both participant observations, which were recorded in a field journal to provide a rich 'insider' perspective, and video observation, which helped to provide a more critical perspective through multiple viewings over time, served to highlight any researcher effects.

Type	**Description**	**Advantages**	**Disadvantages**
Complete participant observation (covert)	Observer takes 'insider' role and does not declare their purpose as a researcher.	Minimises the threat of the research affecting behaviour.	Intrusive and unethical. Inference is dangerous as researcher dare not go outside the confines of the group.
Observer as participant	Role of researcher disclosed but downplayed.	Ethical and allows the opportunity to record data more easily.	Threat of reactivity events where the research affects behaviour.
Participant observation	Observer is known as a researcher to the group. Observation role is secondary.	Allows inference, depth and reliability. Ethical method.	Difficult to develop the necessary skills. Threat of reactivity events where the research affects behaviour.
Complete observer	Researcher observes with no participation	Useful for exploring sensitive topics that are difficult for respondents to discuss.	Inference is open to question. Some informants can present observational problems. Danger of reactivity events.

Table 3.5: Main types of observations (Adapted from Creswell, 2003).

The Researcher as a Legitimate Participant

A fundamental consideration in an ethnographic case study is the position of the researcher. One of the main challenges is balancing the 'emic' and the 'etic' perspectives (Merriam, 1968; Wolcott, 1999). My own experiences are helpful in this regard. Firstly, having worked with computer-mediated environments as a GCSE music student, and also as a teacher of GCSE students in secondary classrooms, in the current study I had an insider 'emic' perspective to a degree. Personal experience of writing compositions with digital technologies reinforced this position. However, I was neither teacher nor student at the school in which the research is conducted. Furthermore, each composer's processes of interacting with others, developing their work and using digital technologies were individual ones. In this sense I had an outsider – etic – perspective.

The position of the researcher must also allow for lengthy observation periods, intense contact with students and staff, focus on the interactions through which students create local realities and descriptive, selective, focused observation. Yet at the same time the presence of the researcher must not compromise the integrity of the classroom as a place for learning. Thus I positioned myself openly as a researcher who had experience of teaching and composing and who specialised in computer-mediated environments. This situation brought together my perspectives and was a reasonable position to occupy in a secondary classroom. I shared with students and teachers a primary interest in the individual compositional development of the students involved in the study. Thus our common motive legitimised my position as a participant in their classroom practice (Lave and Wenger, 1991). While this role allowed access to the perspectives of all participants in the classroom community, reflexivity was also of paramount importance; being required to ensure that meaning was not imposed on participants (Harvey, 1990).

Synchronous Multiple Video Observation

Using participant together with video observation helped to maintain the necessary balance between the insider and outsider perspectives required by the research questions. The use of video and audio data from the three perspectives of class, computer and student addressed the needs of the research questions. It was decided that observations of the classroom composing process would reveal what composing strategies were used, how they were articulated and also how, when and for how long they were used. Video can help to overcome the limitations of what can be seen and recorded through field notes, can help to overcome issues caused by distractions in the field and can reveal greater levels of

detail through post-hoc analysis. There is also significant support in the literature for the use of video observation (Alexander, 2001; Dillon, 2004; Reynolds, 2005; Daniel, 2006).

Ulewicz and Beatty note that (2001) video can detach events from their context, can distort perspective and can limit the view of the events. The use of multiple data sources, careful consideration of camera angles and the use of multiple cameras helped to address these issues. Drawing on the literature, three perspectives (class, computer and student) were used to guard against the loss of certain strategy uses. Seddon and O'Neill (2003) use video recordings of onscreen manipulations to study the composing process of students. Whilst these capture the on screen work of students, it is clear that some students carry out significant work away from the computer (Fölkestad, 1996; Fölkestad et al., 1998). Thus students' work on their own instrument would not be captured using a single data feed from the computer. Consequently, in the current study three sources were used and the data was sampled post-hoc (3.4.6) to focus on the contexts with which composing activity takes place.

Yet several factors constrained the amount and nature of the data that could be collected (budget, storage capacity, synchronisation, presentation needs, surveillance effects). However, recent developments in computer hardware and software presented a new 'Synchronous Multiple Video' (SMV) method of capturing multiple perspectives that helped to deal with some of these issues, facilitating the simultaneous recording, synchronisation and storage of multiple channels of video, audio and musical information. Established around a computer-based camera system, this method also allowed for the immediate digital presentation of multiple perspectives, permitting the use of immediate video-stimulated recall interview (3.3.2). The use of a computer-based digital video recording system (*Video Insight Server*) and capture card (the video insight VNH240) also removed the need for destructive editing and significantly reduced loss of quality through copying. The use of low-cost discreet cameras and existing computer data connections reduced the budget and decreased surveillance effects. Within this system, two portable, wide-angle cameras ensured all classroom activity was captured whilst a close-up camera provided detailed evidence of students' interactions with digital technologies. In this way, the combined use of on screen and classroom video sources attended both to on- and to off-screen composing activities. Furthermore, the facility to record eight channels allowed attention to be paid to multiple cases working simultaneously in different locations within the same classroom. This is demonstrated in Table 3.6, which lists the allocation of channels to each of the three students in each classroom community, and Figure 3.4, which

illustrates the multiple views and time-code[5] screen. Examples of the eight channel multiple screen view and a single screen video can be seen on the attached DVD (Appendix 1).

Channel #	Video source	Audio source
Channel 1	Class angle 1	Classroom microphone
Channel 2	Class angle 2	Teacher lapel microphone
Channel 3	Case 1 computer	Computer audio feed
Channel 4	Case 1 timecode	Case 1 lapel microphone
Channel 5	Case 2 computer	Computer audio feed
Channel 6	Case 2 timecode	Case 2 lapel microphone
Channel 7	Case 3 computer	Computer audio feed
Channel 8	Case 3 timecode	Case 3 lapel microphone

Table 3.6: Channel allocation demonstrating multiple video and audio capture.

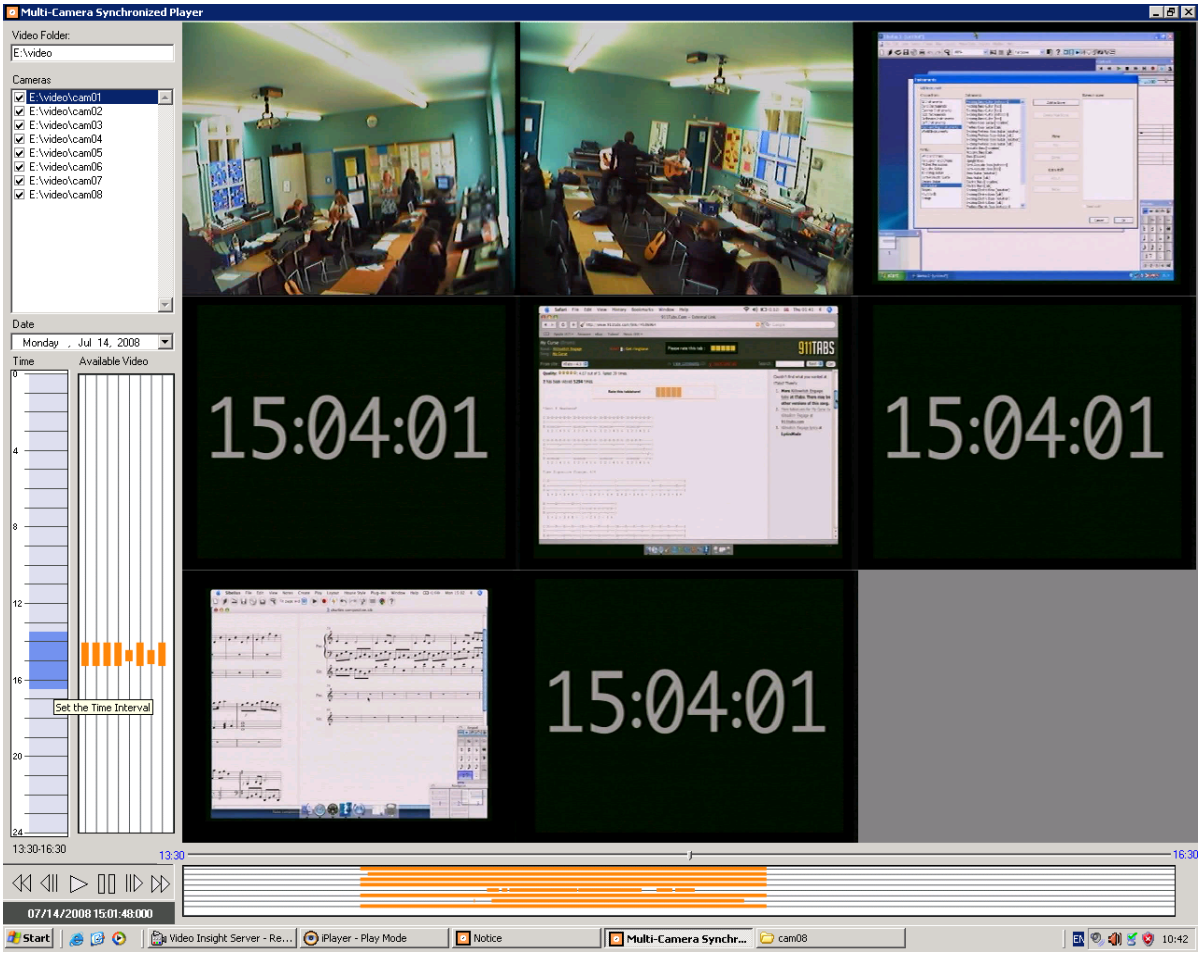

Figure 3.4: An example of the synchronous multiple camera views employed in the present study.

It has been argued that the use of video recording can jeopardise privacy and create an artificial environment (Fölkestad et al., 1998). In the current study, the privacy of participants was assured through the secure storage of video data on a non-networked PC and a requirement for informed consent for the use of video clips. The issue of creating an

5 Time-code refers to a sequence of codes (in this case video images) which are used to synchronise data

artificial environment was addressed through the use of discreet cameras, positioned out of clear sight and recording equipment placed unobtrusively. In addition, wireless microphones helped to avoid any health and safety concerns from trailing leads.

A further benefit of video observation is that it can be used as secondary material to assist the process of describing events through video-stimulated recall. In the present study this was a significant advantage as, like Ericsson and Simon (1984) highlight, students often needed help to recall their composing processes. This is discussed further in Section 3.3.2.

Field Journal

Field notes are the results of observations and can be made 'in situ' and away from the situation (Cohen et al., 2000). They allow an ongoing record to be kept of the unfolding process of research. Information can be noted as it is revealed and can be accessed at a later time. Table 3.7 provides examples of the levels at which field notes may be made.

In the current study keeping detailed field notes complemented the use of video observation, recorded strategies articulated by students in the classroom and recorded information relating to possible changes in students' composing processes. They also served to document the researcher's perspective and were used as a tool for reflexivity. In the present study, notes were made during the observations and used 'post-hoc' with the video evidence to construct more comprehensive accounts of what happened. This approach attends to the issue of field notes being limited in the level of detail they can provide.

Level	**Description**
Notes	Quick notes of key words or symbols.
Detailed notes	Transcriptions and more detailed observations.
Comprehensive accounts	Descriptions that form a complete account of what has happened.
Pen portraits	Participants are represented through written descriptions.
Reconstructions	A written account of the event is constructed after it has happened.
Researcher behaviour	Provides an account of the researcher's activities and behaviour.

Table 3.7: Levels of field notes (LeCompte and Preissle, 1993; Cohen et al., 2000).

3.3.2. **Interviews**

Research question 2 is concerned with gaining an understanding of students' perspectives. Without this data source, triangulation of students' perspectives with observation data would have been impossible as there is no way of knowing students' views of their composing process without asking them. 'Interviews with students' was therefore a key method of data collection.

A common delineation in the literature is between three types of interview: structured, semi-structured and unstructured (Cohen et al., 2000; Gray, 2004). Table 3.8 illustrates these different types of interview, their advantages and disadvantages.

Type	Description	Advantages	Disadvantages	Research examples
Unstructured interview	Questions emerge from the context.	Increases the salience of the questions.	Information gathered may be less systematic and comprehensive.	Fölkestad (1996), Younker (1997)
Semi-structured interviews	Questions are generated from pre-determined themes.	Facilitates the expansion or further explanation of points of interest.	Interviewer flexibility in wording and sequence can result in different responses reducing comparability of results.	Kennedy (1999), Wheeler et al. (2002)
Structured questions	Exact wording and sequence of questions is predetermined.	Useful when gathering data for comparative analysis.	Lack of flexibility may diminish the relevance of the questions. Questions developed in advance may prevent certain events from being seen.	Colley et al. (1992), Hickey (1997)

Table 3.8: Types of interviews.

Being aware of the need critically to set aside my own assumptions, I first conducted a set of open interviews with several students and their teachers. The interviews were guided by the need to gain an insight into the students as musicians and the classroom as a context for development. Subsequent semi-structured interviews with students and teachers attended to students' ways of working and, in this way, supported the selection of appropriate cases. Following each phase of the fieldwork, semi-structured interviews allowed students and teachers to collaborate with the researcher in the unfolding analysis process. The focus of these discussions was on students' changing ways of working with composing strategies. Teacher interviews were required at this stage to account for possible variation due to instruction or task design (2.2). Triangulation of the teachers' contributions was carried out by using data from the SMV recorder (class and student microphone channel). Post-fieldwork, verification was conducted through semi-structured interviews. The main focus in these final interviews was on confirming the accuracy of perspectives presented by the researcher. It is important to note that the teachers' perspectives were not prioritised to the same extent as those of the cases and the researcher. This is because the research questions, presented in Chapter 2, focused on students' changing composing processes. The teachers' contributions helped to establish a rich understanding of the context of students' development and helped to promote a critical stance toward their self-reported ways of working. However, the ethical need to position students as the 'owners' of their development as well as the trainee status of the main class teacher for task 2 (see 4.5) meant

that teachers were not seen as main sources for understanding students changing ways of working. While the class teachers' were important in these developments, the students were seen as the primary authority on their compositional development.

A final consideration, raised by Scott (2000) and O'Kane (2000), is that the context requires attention when conducting interviews with children and young people; a familiar context encourages participants to feel comfortable. In the present study consultation with the class teachers and students helped to determine an appropriate time and location.

Video-Stimulated Recall

In addition to semi-structured interviews, a crucial element of gaining a critical perspective, both as researcher and from participants, is the use of video-stimulated recall (VSR). Building upon the verbal protocol method (Sloboda, 1985; Fölkestad, 1996; Collins, 2005), in which participants verbally describe their thoughts while performing a task (Ericsson and Simon, 1984), VSR involves the identification of key incidents through observations made during a video review process (Ulewicz and Beatty, 2001). This method of supporting students to recall and critically think about their composing process was successfully used as part of the author's MPhil study (Kirkman, 2007). In addition, the benefits of this approach are demonstrated in reference to existing literature in Table 3.9.

Type	**Definition**	**Advantages**	**Disadvantages**	**Research examples**
Concurrent reporting.	Reports are made while performing task.	Avoids issues of memory and reinterpretation.	Interferes with the composing process.	Collins (2005), Sloboda (1985)
Immediate retrospective reporting.	Reports are made immediately after performing task.	Avoids interference with the composing process.	Participants may struggle to remember their thinking.	Seddon and O'Neill (2003), Fölkestad (1996)
Immediate retrospective reporting using video stimulated recall.	Reports are made immediately after performing task using video to assist the process.	Avoids interference with the composing process and helps participants remember what they were thinking.	Events may be reinterpreted by participants.	Perkins (1981), Lyle (2003), Tobin (1989)

Table 3.9: Forms of verbal protocol.

A possible criticism of VSR is the opportunity for the introduction of researcher bias through camera angles and editing of video (Tobin, 1989). The present study addressed this issue by playing back the full synchronous multi-channel video (3.3.1) and using the rewind and forward controls in a collaborative way to focus on particular segments of video. At critical points chosen collaboratively with the students, a series of semi-structured questions helped to avoid leading questions, addressed the complexity of the

situation and helped to make the most efficient use of time. An example of these semi-structured questions can be seen in Appendix 1.

VSR addressed the needs of the research questions (see Table 3.4) to discover students' and teachers' perspectives. The aim of the student VSR was to explore students' composing processes through their articulation of strategies and to position them as collaborators in the researching of their compositional development. Together with student VSR interviews following each composing session, a teacher interview helped to promote a critical stance toward students' self-reported ways of working and helped to provide an insight into their developing pedagogy.

3.3.3. **Documents and Computer-Files**

Three methods suggested in the literature served to complement the use of observations and interviews: student portfolios, site documents and computer-data files. These will be discussed in turn.

Digital Portfolio

The use of observation and interview to gather data on students' individual and changing composing processes relies largely upon the assumption that composing will occur in the classroom. However, several studies have revealed the importance of work outside the classroom in support of secondary students' compositional development (Campbell, 1995; Green, 2001; Savage, 2003; Batt-Rawden and DeNora, 2005; Green, 2008). This is underscored by the research on parental support and practice in the development of specialist skills (2.1). To account for work outside the classroom, students were asked to build a portfolio of their ongoing composing work. This allowed for triangulation with other data forms. In addition, participant self-documentation is congruent with an ethnographic methodology; seeking an 'emic' perspective, it served further to empower students as researchers of their own practice. Support for self-documentation can be found in Csikszentmihalyi's (1996) investigations of the flow experiences of artists.

Evidence from outside the classroom was added to this portfolio of students' work. In addition, documentary evidence from inside the classroom was gathered using a process based on Fölkestad's (1996) 'MIDI save-as' method. Fölkestad's method involves asking participants to use the 'save-as' function of the computer software to make a copy of the file when a new or significant change is made. Each file was time- and date-stamped, allowing subsequent analysis. In Fölkestad's study, these files were used to stimulate discussion about students' composing processes. Seddon and O'Neill (2003) and Collins (2005) used the save-as technique to generate musical scores for subsequent analysis.

However music software frequently combines both audio[6] and MIDI data and printing only the MIDI scores does not permit the use of audio in the analysis. In addition, the need for the MIDI files to be generated by students may interrupt the flow (Csikszentmihalyi 1996) of the composing process. The present study built on the save-as technique but used an external MIDI capture device (*Midisport 8x8 + Logic 8*) to save all MIDI interaction in an unobtrusive mamnner. This technique was developed following both the Fölkestad method and Hickey's (1997) method of capturing the composing process of music students through a data file generated from a real-time MIDI stream. In this way a complete picture of the MIDI composition process was generated automatically, greatly reducing the surveillance effect (Hickey 1997). Following each session, a copy of all files from students' work areas was copied onto an external hard-drive to maintain a catalogue of audio files. As each of these files has a time and date stamp, they were mapped together with the MIDI stream to form a real-time diary (Collins 2005) of students' composing processes. This provided a method of triangulating information on students' classroom strategy use from video observation and student VSR sessions. An example of a MIDI file converted to staff notation for analysis can be seen in Appendix 1.

Documents

In addition to the above methods of data collection, a digital catalogue of documents relating to the cases, music education, technology use, composing and compositional development was compiled. Each of these documents was converted into a digital format and added to a digital site profile, providing a macro view of the research site. The decision was made to compile these documents in digital format so that music data, such as recordings of concerts, exemplar materials and software templates, could be efficiently linked in with the profile. Converted documents include: class lists, timetables, schemes of work, school reports , school assessment data, recordings of concerts, exemplar materials, and software templates. These data allowed for the triangulation of observation and interview data relating both to why students use certain strategies and also to qualitative changes in their composing process. Together with teacher interviews, this provided a way of monitoring changes in the context of composing alongside changes in students composing.

[6] Whilst MIDI data is information that can be used by digital instruments to generate sound, audio data is the actual sound itself, which has been recorded (in this case 16 bit at 44.1 Khz – CD quality sound).

3.3.4. **Summary**

In keeping with the ethnographic methodology and multiple case study strategy demanded by the research questions, the present study employed qualitative participatory methods. A variety of methods maintained a dialogue between insider and outsider perspectives. Students were key collaborators in the research process. Methods included: participant observation and video observation, unstructured, semi-structured and VSR interviews, the construction of student portfolios, student digital portfolios and site-based digital profiles.

3.4. THE RESEARCH PLAN

The research plan presented in the following section draws on existing research into students' development and the composing processes of GCSE students. Before moving on to this discussion, three issues specific to the present study should be considered. Firstly, given that the research questions in the present study required the investigation of GCSE students' compositional development, it was paramount that the fieldwork was carried out over a period long enough to see change of this nature (Stock, 2002; Mcpherson, 2005; Chan et al., 2006; Macnamara et al., 2006; 2008; Kopiez and Lehmann, 2008; Sokol et al., 2008). Secondly, GCSE courses are normally taught over two years (including examination) between year 10 and year 11. Allowing for the students to settle into the course, produce examination coursework and take examinations, this left a little over one year within which to carry out the proposed study. While this was not seen as an extended period of time, the progression suggested by KS3 and GCSE assessment criteria (Edexcel 2006; QCA 2007a; OCR 2008) indicated the potential to see marked change in this period. To maximise the potential to observe seeing this change and minimise disruption to students' education, I conducted the research within a time-frame of one year between January and December 2009. Finally, I carried out a pilot study to guard against the naturalistic classroom setting causing unforeseen issues for the data recording equipment (3.6).

3.4.1. **Phases of the Research**

Figure 3.5 illustrates the broad structure of the research while Table 3.10 outlines the main aspects of each stage.

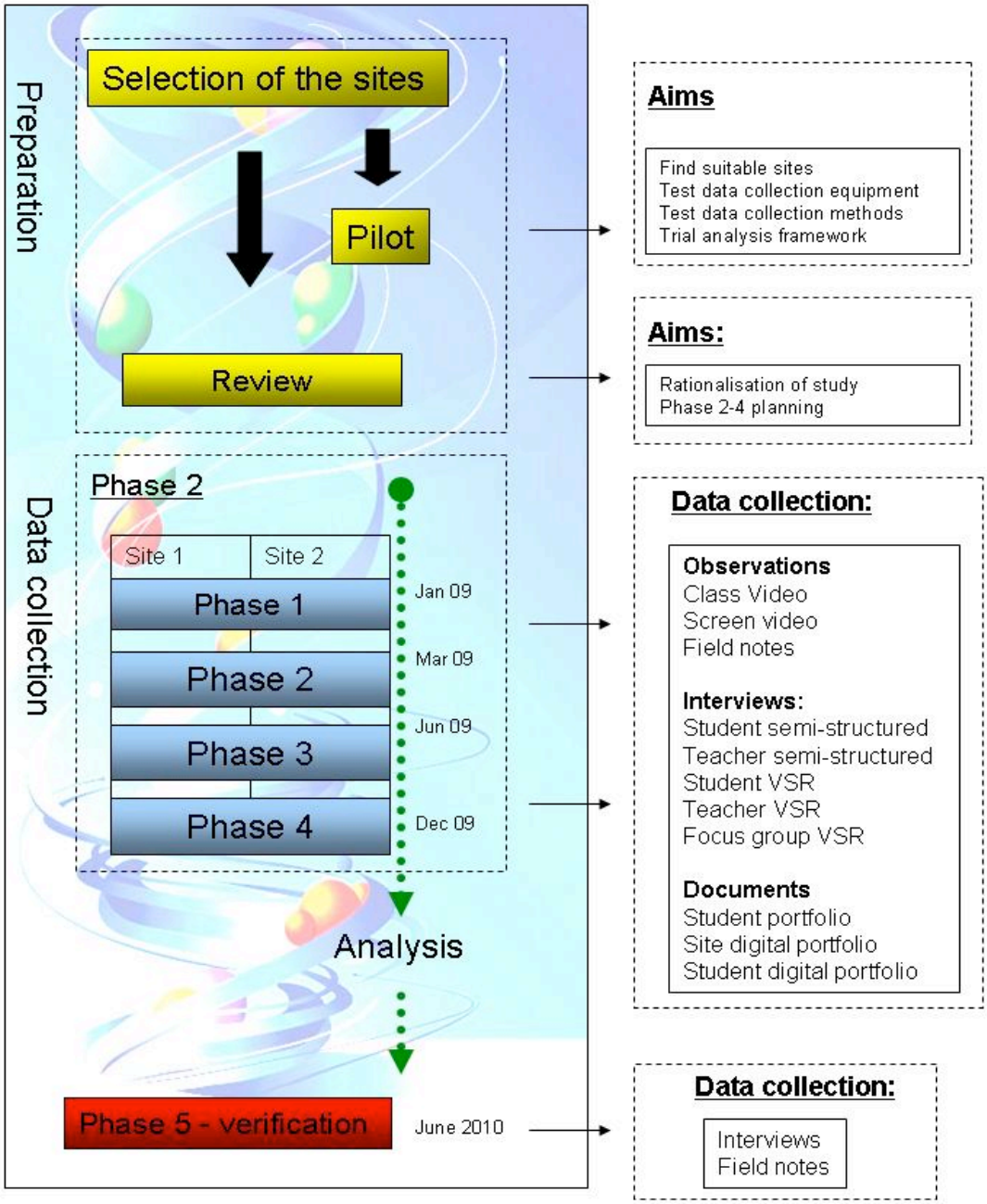

Figure 3.5: The Research Phases.

Stage	Aim	Goals
Preparation stage	Find and gain access to school fulfils the selection criteria.	Test of: the equipment; the methods and techniques for data collection; and, the time frame of a cycle. Test the analysis framework.
Phase 1 – Training and introduction	This Phase allows for setting up and testing of equipment.	Deliver site-based practice in the use of the VSR technology through two sessions. Select the cases by week 3. Build detailed case profiles for sites and students. Ensure researcher effects are minimised by allowing time for adjustment to miniature cameras and microphones, Establish positive relations with staff and students. Confirm timetable for Phase 2.
Phases 2 - 4	Data collection.	Five visits into composition lessons during a six week period (see schedule laid out in Table 3.11).
Phase 2b - 4b – Analysis	Ongoing analysis.	Analyse and reflect on the data collected to date - interspersing visits to each site within the same week. The volume of data collected and its richness prevent preliminary analysis from being carried out concurrently. Maintain critical perspective. See also Section 3.5.
Phase 5	Verification	Discuss findings with participants. Review, update and/or accompany with student/teachers views.

Table 3.10: Stages of research.

The timeframe for Phases 2-4 is laid out in the next section (3.4.2). Phases 3 and 4 follow a similar pattern to that of Phase 2 but were be updated to reflect a more focused approach in the light of ongoing analysis (see Phase 2b). In this way sampling was be based on collaborative and critical analysis of the accumulating data.

Week	Class video	Screen-capture	Field journal	Teacher	Student VSR	Individual Semi-structured	Student digital portfolio	Site digital portfolio
1	√	√	√		√		√	√
2	√	√	√				√	√
3	√	√	√		√		√	√
4	√	√	√				√	√
5	√	√	√	√	√		√	√
6						√	√	√

Table 3.11: Schedule for weekly visits.

3.4.2. **Timeframe**

The research was carried out within a 12-month period between January and December 2009. Laying out the research in this way flowed naturally from the ethnographic methodology, which sought to achieve depth and a degree of breadth in the data. In addition, it gave ethical consideration to the time commitment of participants, facilitated ongoing analysis throughout the fieldwork phases and met the methodological needs of the study for training, acclimatisation and participant verification. Finally, a one-year fieldwork period was viable within the constraints of a PhD study. Table 3.12 lays out the broad timeline. Timings laid out for each phase of data collection can be seen in detail in appendices 1 and 2

Mid Jan – ½ term	Phase 1
½ term – Easter	Phase 2
Easter break = analysis	
Easter – ½ term	Phase 3
½ term – Summer	
Summer break = analysis	
Sept – ½ term	Phase 4
½ term - Christmas	

Table 3.12: Fieldwork period – long term plan (2009).

3.4.3. **Credibility**

As the role of the researcher was one of an active participant, credibility was not achieved by setting aside the position of the researcher (Harvey, 1990). Instead, several considerations ensured that a critical dialogue was maintained between all participants.

Generalisability

A common discussion and debate in literature relating to case studies is the degree to which research needs to be generalisable. Yin (2003) observes that a common criticism of case studies is that they provide little basis for scientific generalisation, while Deising (1972) suggests that generalisations can be made legitimately by integrating both uniqueness and regularity. In a similar way, Stake (1995) suggests that naturalistic generalisations can be made by recognising similarities between issues in different contexts. For example, teachers may recognise similarities between students in the present study and those in their classes. If cases are documented through rich description, these new situations can be understood with reference to the existing case knowledge. The current research adopts this stance as knowledge is often transferred through empathic understanding. This can be achieved through rich description of the case (Yin 2003). Thus the findings in the present study provide rich descriptions of the cases and their composing processes and ion so doing allow naturalistic generalisations to be made.

Validity

A second consideration when forming theoretical propositions is the degree to which any interpretation is 'valid'. According to Denzin and Lincoln (1998), validity in qualitative research is to do with how well an interpretation fits the description. This is in contrast to validity in quantitative studies, which involves the correct application of techniques. As Wolcott (1999) suggests, ethnographic studies can improve validity by attending closely to the perspectives opinions and attitudes of participants. Equally, it is acknowledged that the researcher's identity and beliefs also naturally become part of the end-product through the influences they exert on the process (Ball 1990). In the current study Creswell's (2003) six checks were used as a framework to ensure 'internal' validity (see Table 3.13).

Check	**Description**	**Application in the present study**	**Section**
Triangulation	Examination of different sources of information to build wider justification for emergent themes.	Observation, Interviews, documents and computer files.	3.3, 4, 5, 6
Member-checking	Findings are discussed with participants to ensure the accuracy of interpretations.	Verification sessions (Mccormick and James 1988).	3.3, 4, 5, 6
Thick description	Describing context and events in detail allows readers to identify with the setting and may help to reveal bias.	Thick descriptions given in the findings section.	3.1, 4, 5, 6
Presenting negative information	The full picture, including negative information, may highlight different interpretations.	Findings that do not fit the patterns observed are reported in the findings.	3.5, 4, 5, 6
Self-reflection	Researcher promotes honesty in the narrative account of the study (Denscombe 2003 p. 89).	Field journal reflections on experiences, values, and changing perspectives (Willig 2001).	3.3.1, 4, 5, 6, 7
Setting	Participants behave differently in new situations (Lave and Kvale 1995).	Training task allows students to become familiar with environment.	3.4

Table 3.13: Checks for internal validity.

3.4.4. **Ethics**

Ethical considerations should be at the forefront of any piece of research, as indeed they should in life. Ethics can be thought of as a code of conduct, for example, the Hyppocratic oath: "first of all do no harm", a creed like the Ten Commandments or standards of conduct that govern behaviour within a particular field (Resnik, 2007). In the present study, 'ethics' are defined in the latter sense.

The standards of conduct in UK educational research are laid down by the British Educational Research Association (BERA, 2004) and adhering to these principles helps to ensure that action and activities can be coordinated and trusted. The BERA (2004) guidelines highlight five areas of concern: "the person, knowledge, democratic values, the quality of educational research and academic freedom" (p5). Thus 'credibility', 'generalisability', 'validity' and 'reporting' are all ethical issues, together with 'building

upon existing literature' and 'being open to criticism'. However, several more specific issues come to the fore when conducting research into the practice of education with secondary students. These relate to voluntary informed consent, the interests of the child, right of expression, predictable detriment, privacy and disclosure.

As this research project was concerned with minors, voluntary informed consent was needed from all students involved, their parents and the school. This included students involved directly with the process of research and also those indirectly within the classroom community. An outline of the proposed study and a covering letter was given to each participant requiring a signature to confirm acceptance of the research. In addition, participants were free to withdraw at any stage in the research process for any or no reason. Additionally, two further issues stem from articles 3 and 12 of the UN Convention on the Rights of the Child. Article 3 is concerned that all actions should be in the best interests of the child, while Article 12 grants children the right of expression in all matters relating to them. The current research used VSR as a powerful tool in this regard. Positioning students as co-researchers in their own composing practice placed their voices as central to the study. Furthermore, there is intrinsic value in working with them on an individual basis to discuss their composing. The process in and of itself is likely to have impacted in a positive way upon their musical development.

Alongside this, the issue of 'predictable detriment' (p8) is particularly relevant in the present study, as it was carried out during the school day. This issue was addressed in several ways: i) discussions with the head of department formed the basis of the timeline for the fieldwork and minimised disruption to other school activities; ii) the research drew on the authentic work of music students and avoided disruption to the music curriculum iii) the presence of an extra skilled classroom adult in the form of the researcher provided an additional resource for all students in the lessons; iv) impact on the music classroom was minimised through positioning the researcher as legitimate participant, the use of discreet cameras and lapel microphones, the use of an unobtrusive screen capture technique and the use of existing computers and software at each site.

To address concerns about protecting the identities of participants, all participants were offered the opportunity to remain anonymous and to receive a copy of the final report. It was made clear that the research was to be used to investigate students' composing processes and subsequent uses would require consent. In addition, data was stored on a non-networked PC. It was made clear that disclosure by participants of illegal or unsafe behaviour, or behaviour judged to be inconsistent with the best interests of the students involved would be passed on to the appropriate child protection officer at the school. These

ethical principles were written into the consent letter, which was signed by the head of the school, parents and student participants in advance of their involvement.

3.4.5. **Equipment**

It was noted in the discussion of the VSR method of data collection (3.3) that a new system for collecting multiple data streams was designed for the current study. Appendix 3 details the equipment used in this system, while figures 3.6, 3.7 and 3.8 demonstrate how they were connected together.

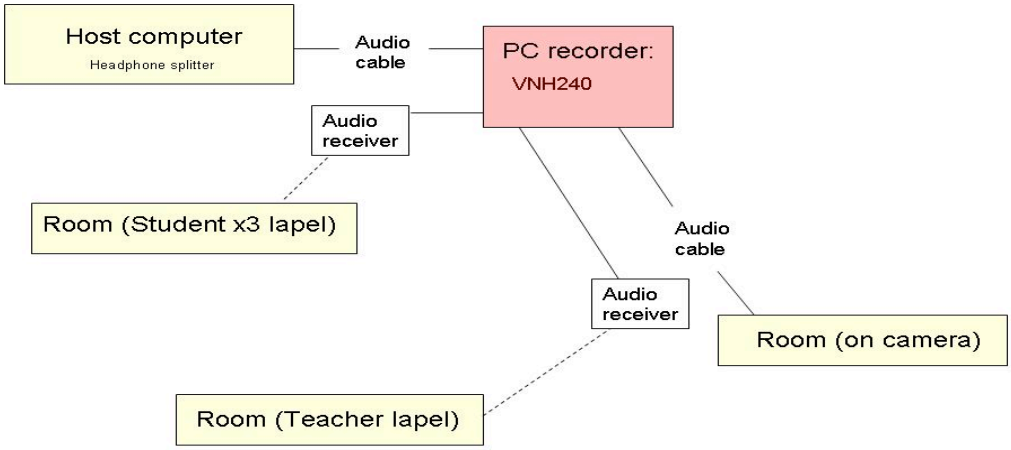

Figure 3.6 Audio connections.

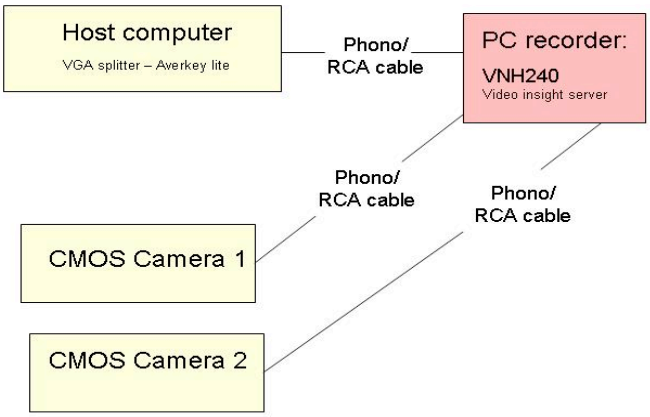

Figure 3.7: Video connections.

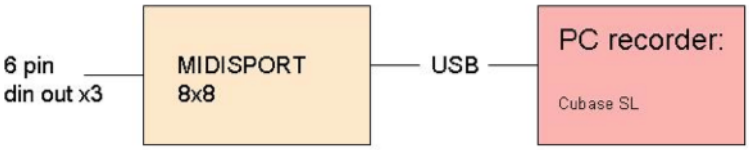

Figure 3.8: MIDI connections.

The data recording system was designed in accordance with three basic principles: flexibility, efficiency and synchronisation. Flexibility was required as, from my own experience, classrooms can be unpredictable places. Students' work took them to multiple locations and involved several modes of interaction within a short space of time. Thus each system was designed to capture actions local to the digital technologies and also attended to movement around the classroom. Lightweight portable CMOS cameras enable the cameras to be quickly shifted if a student needed to move to a different room. Wireless lapel microphones allowed teachers and students to move freely around the classroom unimpeded by wires. Finally, the need to capture data from existing school computers and software, in accordance with an ethnographic methodology, necessitated an approach that would be suitable for any software running on any platform. This was achieved by taking a VGA output from the school computers using an A*vermedia lite* converter and using a headphone splitter from the soundcard to obtain the audio. In addition, the MIDI was recorded using a MIDI splitter between the input device (eg music keyboard) and the computer (Mac or PC). Following an extensive review of the literature, this appears to be a novel approach to capturing and analysing multiple streams of video, audio and MIDI data.

3.4.6. **Volume of data: data handling and critical incident charting**

The volume of digital data generated is significant. This issue was addressed in two ways. Firstly, to avoid the need for time-consuming copying, duplication or transfer of data between formats the Synchronous Multiple Video (SMV) system was designed to capture each data type in the same format that was used for analysis. In addition, the use of a single PC maximised the speed with which the system could be set up and increased its portability. The system neatly fitted into a 19-inch portable rack unit and two plastic containers. It could be put together in 30 minutes. The need for synchronisation arose out of the problems experienced by other researchers when using video data. While it is possible to synchronise using a clapper board (Younker and Smith, 1996; Younker, 1997) or a time-code strip (Weis and Belton, 1985; Bartlett and Bartlett, 1998; Rona, 2000), the digital nature of the real-time data being recorded allowed synchronisation through the built-in time-stamping of the computer files. The Video Insight Server software automatically synchronised the eight channels of video and audio. These were then related to the MIDI- and student-recorded audio data through the built-in time-stamp. Thus, the system demonstrated above allowed video, audio and MIDI data to be captured flexibly, efficiently and in a way that could easily be synchronised. Secondly, a critical incident charting procedure was adopted which drew on the VSR critical sampling technique (Ulewicz and

Beatty, 2001) and an image-based 'river of experience' technique (Burnard, 2000b). Students were invited to recall significant 'critical' events in their musical histories and then drew these onto a picture of a winding river. In this case the technique was used both to identify significant events in students' life histories and key incidents across the composing projects completed during the current study. Thus the 'river of experience' became a means to chart both their critical life incidents on a macro scale and their critical composing incidents on a micro scale. Using the critical composing incidents identified during the interview, key moments of change in their composing processes were identified in collaboration with the students, becoming the focus for subsequent analysis. The criteria for identifying critical incidents that emerged from the interviews with students were:

1. Student self-selected incidents when they felt significant progress was made
2. Student self-selected incidents when they felt there was a change in their way of working
3. Student self-selected incidents when they felt that something of interest happened
4. Incidents selected on the basis of possible significant gaps in students' self-selected incidents identified through the analysis of their articulated and their observed ways of working

While Criteria 1-3 prioritise the students' own accounts of their composing processes, Criteria 4 promoted a critical stance toward the students' self-reported incidents. In this way the need for rigour was balanced with the necessity to promote students' own voices and in so doing acknowledged their authority over their own composing processes (see 3.4.4). Thus the volume of data requiring handing and analysis was minimised both through digital synchronisation and critical incident sampling.

3.4.7. **Summary**

The research plan was constructed in response to the needs of the research questions for an interactional ethnographic approach employing digital data collection methods as an integral part of the methodology. The time-frame was one year between January and December 2009 and was divided into five phases, three of which were periods of intense data collection and analysis with students as co-researchers. Design checks were employed to ensure credibility and validity and a strict ethical attitude helped to address the risks of working with minors. The digital equipment for data collection was designed to facilitate flexibility, efficiency and synchronisation. Having outlined the plan for the research, the following section outlines how I approached the analysis.

3.5. A FRAMEWORK FOR ANALYSIS

One of the challenges in ethnographic research can be the large amount of data generated in the field (Wolcott, 1999; Stock, 2002; Gray, 2004). The real-time process of collection that includes video, audio and MIDI forms of data means that parts of the recordings are not needed to address the research questions. Nevertheless, there was a large amount of data to manage before the initial critical incident sampling. It has been noted (Section 3.3) that much of the data collected in the field was in a digital format. Thus, the first task was to organise all the data into digital portfolios of work for each student. Table 3.14 illustrates the types of digital data and the ways in which they were organised. This was an ongoing process during the fieldwork.

Type	Method	Action	Final Data type
Observation	Class video	Copy file	mpeg-4
	Screen capture	Copy file	mpeg-4
	Field journal	Transfer to txt	txt
Interview	Teacher	Transcribe	txt
	Student VSR	Transcribe	txt
	Focus group VSR	Transcribe	txt
	SS interview Teacher	Transcribe	txt
	SS interview Students	Transcribe	txt
Documents & Files	Student portfolio	Copy to pdf	pdf
	Site digital portfolio	Copy files	pdf, txt, mpeg-4, mp3

Table 3.14: Data types and final data formats.

Once the data were converted into digital format, they were imported into a digital analysis package (NVivo) for review and coding. In this way all the data types were linked together as digital diaries (Collins, 2005) of students' work based on the critical incident charting procedure discussed in Section 3.4.6.

The next stage in the process was to review and code the data for composing strategies, opportunities and constraints and student interactions. The approach adopted was based on a constant comparative method in which newly collected data is compared with previous data from this and other earlier studies (Charmaz, 2005). This approach allowed the conceptual categories to arise through interpretation of the data rather than from the data alone and so acknowledged the agency of the students, and to an extent the teachers in this process. VSR and interview data was used to maintain this 'insider' perspective. Thus the codes were both inductive and deductive. Literature support for this approach to the analysis of students' composing process can be found in Seddon's work on the composing processes of secondary-aged students (2003; 2005; 2006b; 2007). In a study with

O'Neill (2003), he adopted a constant comparative method (Goetz and LeCompte, 1981; Strauss and Corbin, 1994) based on Mcleod (1994). In a similar way, the present study moved through the following process: organisation of the data; initial coding, which was concurrent with the data collection; phenomenological reduction and triangulation, which occurred between the data collection stages (Phases 2b–4b); and finally interpretation, which formed a key part of Phase 5.

A constant comparative method of analysis was complemented by the use of activity theory (see Section 3.1.3) to link together multiple perspectives in a critical dialogue. Students were positioned as co-researchers in the study through their personal reflections in the VSR and interview sessions and involvement in the critical sampling of data. At the same time the research involved a reflective dialogical interaction between insider, working in the classroom, and outsider, using video observation and data files to analyse classroom practice critically. In this way the present study met the needs of the research questions to address insider and outsider, emic and etic perspectives (see Section 3.1.4).

3.6. PILOT STUDY: AN EVALUATION OF THE TOOLS

A pilot study was conducted with the purposes of finding an appropriate research site, testing the newly developed methods of data collection and to highlight any potential issues with the methodology through the simulation of one phase cycle. These three aims are discussed in turn.

Phase 1: Finding Sites for Investigation

To find a site within which to conduct the investigation, a map was constructed of possible locations in North Essex, West Suffolk and East Cambridgeshire. Based upon government data, a list of schools that met the criteria for selection was compiled and every school within a radius of 40 miles from the researcher's home was placed onto the map. Letters were sent to the head teacher of each of these schools and from an initial twenty-three schools, nine were visited. An observation sheet was completed for each school and four sites chosen for a second visit. Appendix 4 and Appendix 5 contain examples of these data sheets. Of these four sites one was found to have superior music technology facilities and departmental interest in the research and was chosen on these grounds.

Phase 2: Digital Data Capture

During the pilot phase the digital data collection methods were tested. Table 3.15 summarises the modifications made to the computer-based data collection system as a

result of Phase 2. Despite some initial setbacks, digital data were successfully captured in accordance with the final research design.

Phase 3: One Task Cycle

The final phase of the pilot involved a cycle of work, in which each method of data collection was tested. To ensure that the data collected would provide answers to the research questions, the data was analysed for strategies, computer-based opportunities and constraints and computer-mediated interactions. The main results of this phase of the pilot are summarised in Table 3.16. The conclusion of the pilot was that the research design of the current study addresses the needs of all of the research questions.

No	Finding	Solution
1	Fixed-position room cameras require flexibility during the session. Students often begin the lesson as a class receiving instructions from the teacher. Following this they initially move to their own workstations and then during the course of the lesson move between workstations and rooms to collaborate on ideas.	A 'clip-mount' system for each camera is constructed to allow flexible positioning. This enables each camera to be unclipped and moved as needed throughout the lesson.
2	The fixed-position microphones miss much of students' and teachers' dialogue as a result of the movement of students and teachers around the classroom.	Wireless lapel microphones provided a flexible and safe way to ensure this dialogue was recorded.
3	The recording software only captures audio when a video signal is present. In addition, each audio signal is mono[7] only. This means that the students' individual audio signals are lost.	By linking a time-code generator up to each of the three student audio channels, a video signal of the current time is created that is fed through a splitter unit into each channel. Thus, both current time and student audio can be recorded together.
4	The initial design of the pilot is to test data recording via online student digital portfolios in a web-based social networking site (ning.com). Little use is made of this environment due to limitations of the school networking environment and possibly the fact that this technology is unfamiliar to students. However, the students express an interest in the facility. Also they successfully upload their first group composition as a demonstration.	It is decided that the researcher will construct the final digital portfolio from students' own work, drawing upon documents and computer files.

Table 3.15: Pilot Phase 2 findings.

[7] Mono indicates a single channel of sound rather than stereo which allows for two separate left and right interlaced channels.

No	Finding	Research question
1	The data are successfully transferred into NVivo for analysis.	-
2	The time required for this process is noted and the main research design updated accordingly.	-
3	Strategies are successfully observed and articulated by students.	1
4	Different uses of strategies are identified by the researcher and articulated by students.	2
5	Changes in the nature and use of students' strategies were not seen. However, the results of the analysis for questions 1 and 2 demonstrate the potential to see evidence of change when working in the field over time. This is a clear confirmation of the need to conduct this study over the period of time detailed in Section 3.4.	3

Table 3.16: Pilot Phase 3 findings.

3.7. A SUMMARY OF THE RESEARCH FOUNDATIONS

The current study addressed the needs of the research questions by building upon a constructionist epistemology, a theoretical perspective that employed symbolic interactionism with activity theory and an ethnographic methodology. A multiple case study strategy based at two schools and focusing on three students at each site balanced the need for breadth and depth. The researcher was positioned as participant observer. Methods included observation, interview, documents and computer files with video data being used both as a primary and secondary data source. The plan and phases of the research were constructed to ensure adequate time for data collection and analysis while in the field. Recursive visits allowed each phase to be progressively focused. As the case study strategy sought to draw out significant details about individual cases, no claims are made for generalisability. At the same time, several design checks were put in place to ensure credibility and validity. The framework for analysis adopted a constant comparative approach and employed activity theory as a tool to critically examine students' articulation of their strategy use. Finally, a three-phase pilot was conducted to ensure successful data collection and analysis that would facilitate answers to each research question. Results of the pilot indicated that the approach adopted in the present study would address the needs of the research questions.

4. FINDINGS PART 1: A CLASSROOM COMMUNITY

In this chapter I will present the stories of Sam and Emily, the two students with whom I worked closely throughout the fieldwork process. Rather than structuring the chapter around the research questions, I felt it more appropriate to tell each student's story as it emerged over time. The intention is that this allows their strategies, contexts and development to be observed more openly as well as allowing the students' own experiences to rise to the surface more easily. In addition, this approach complements the focus of the study as chronology is implicated in the nature of development. Sam's composing process will be discussed first , followed by Emily's. In turn, I will first present their composing strategies, then the community and environments in which they composed. Finally I will present significant changes observed in their composing over time.

Before this, the following section will introduce the school context in which the current study was conducted. Over the course of the study I came to see the arts college status of the school as an indication of its aspirations for individuals and the local community. However, I also began to see gaps in the way these aspirations played out in music lessons. The college and faculty will be introduced first, followed by the music department. Then I will present details about the music class, the teachers and the composing tasks which framed students' composing processes.

4.1. AN ARTS COLLEGE

I selected the location of this study after making several visits to schools across East Anglia. It matched the criteria laid out in Section 3.2 and, as a 13-18 arts college with 900 students on roll, appeared to be a good prospect for supporting my ongoing research. The school takes its name from its location in an East Anglian town that I have called Stourbank. The field notes I made on my first visit to the school reveal something of its character to the newcomer:

> I walked up the stairs, and the automatic doors into the school and the confident red frontage and curved walls of the arts centre immediately captured my attention. After entering, I was struck with the rather novel reception - located upstairs rather than on the ground floor, as I expected. Nice carpet, easy chairs and a friendly receptionist. In the reception you can see lots of trophies and awards in the cabinets, and windows into the sports hall allow a view of learning in progress.

Stourbank school's welcoming appearance and pleasant reception is indicative of the way I came to see the school as a bounded community which looks outwardly towards its locality while welcoming visitors. Just as the reception windows into the sports hall reflect its openness to visitors, so also I found the staff welcoming and keen to engage.

My initial experience of the school as both an outward-looking and welcoming institution is perhaps not surprising when viewed alongside its status as an arts college. The UK government introduced specialist status in 1994 (Castle & Evans, 2006) and all schools wishing to apply for this status were required to generate sponsorship, as well as an application that contained evidence under the following five headings:

> The Specialist School as a centre of excellence:
>
> 1. In the specialism.
> 2. Using the specialism to drive whole-school improvement and the systematic development of a distinct ethos of continual improvement and success.
> 3. Working with partner schools to improve outcomes for young people in those schools.
> 4. Working with wider community groups to support community cohesion, family learning and extended services.
> 5. An outward-facing centre of excellence contributing to specialism-related developments at a regional and national level (DCSF 2010).

Looking at items three, four and five in this list, it can be seen that community engagement is a key aspect of specialist status. Item three speaks of 'partner schools'. These are schools in the locality with which Stourbank enjoys a close relationship. Item four mentions 'wider community groups' and 'community cohesion'. Indeed item five uses the term 'outward-facing' to describe the type of evidence expected.

As well as in my initial impressions of the building, the ways in which these headings appear to have shaped the school management's thinking are also evident in the placement of other schools and community organisations. Stourbank is in partnership with the second local secondary school in a local education trust which brings together local health providers, educational institutions, businesses and charities. Its relationship with this trust is linked to its status as a foundation school, which means that it is funded directly from central government. In addition, as well as appointing a quarter of the school governors (three), the trust also owns the school premises. Set in this context it is therefore significant that next to the school is a new children and family centre, a new centre for vocational education, a recently built special school and a local primary school. Nearby also lies one of three middle schools that feed into the school. In the light of this wider context, it appears that the local education trust may be actively working to locate their schools and community projects in locations that allow them to reflect the 'partnership' and 'community…extended services' model suggested by the specialist status criteria referred to above.

However, to ascertain the degree to which Stourbank's and the local trust's outward-facing appearance runs deeper than the surface of the buildings for which the trust is responsible requires an examination of both the school's values and practice. The school's aspirations in this area can be seen in the headteacher's statement in the school prospectus:

> We aim to provide a learning environment which is safe, stimulating, creative, positive and challenging. It is a caring environment in which **students** and staff make use of high quality learning opportunities to develop **their** maximum academic, moral, social and spiritual potential. We recognise that our students are **individuals** and need **tailored** education in order to achieve the best results…Each student's personal attitude is the key to their progress[8]".

Significant in this excerpt is the suggestion that 'students' make use of learning opportunities to develop 'their' potential. As well as highlighting the role of school staff in providing high-quality learning opportunities, the above statement suggests that students are empowered to take ownership of their own learning. It also appears from this statement that Stourbank aspires to tailor the learning process to the needs of each individual student, 'Our students are individuals and need tailored education'. Thus, we might say that two key aspects of the school ethos are looking to the community and tailoring learning to the individual by providing high-quality learning opportunities and by empowering students to take ownership of their own learning. While these are admirable aspirations, I came to find that in practice there are incongruities that exist between these laudable goals and which permeate the school ethos constraining students' musical development. I will expound this tension further through an examination of the school's arts college activities.

4.2. A SCHOOL ETHOS

The school arts programme is coordinated through a head of faculty (Janet) who is also an assistant head. The music subject area is one of six subjects within this performing arts faculty and each department regularly presents work, both in school and to the public, in evening concerts and visits in the school's locality. During my initial visits to the school, I became aware of the large number of arts events presented at the school. For example, the music department regularly organises presentations to whole year groups as part of assemblies or during lunchtime. They also present 'Classic album nights', during which students perform the songs from a particular music album, school band concerts and also the yearly school production.

In the school's Arts College statement Janet (the head of faculty) writes that the school ethos is to:

1. To work with other schools & the wider community in sharing resources and facilities to develop learning opportunities in the arts.
2. To provide arts extracurricular opportunities to enrich learning across the curriculum.
3. To make imaginative use of new technologies to raise the quality of learning and teaching.
4. To involve professionals from local and national creative industries in the school and community to maximise learning.
5. To promote vocational courses in the arts to encourage wider participation.
6. To ensure that learning in the arts is marked by creative rigour and discipline.

[8] From school prospectus 2008

Taken together these items support my impression that the faculty has many different opportunities for engaging with the arts and for working with, and presenting high quality artwork to, the community. However, notably there is less of an explicit focus on the individual than was seen in the head's prospectus statement (above). It is perhaps understandable that this statement would seek to focus on the wider student body. Yet if we now turn to the music department, I will present a similar focus on practical activities and groups, which might be understood to shift attention away from the needs of individual learners.

4.3. THE DEPARTMENT

During the study, Stourbank's music department was overseen by Val; the head of music and class teacher of GCSE and A-level music students. There are two further members of staff: a teacher of music who takes responsibility for music technology and a technician whose work in the music area forms part of a wider faculty role. In addition, the music department frequently hosts students who are completing initial teacher training courses. Over the course of the current study a trainee (Emma) who was completing her Postgraduate Certificate in Education (PGCE) played a significant role in students' learning during the first two phases of the study.

More informally, subject areas within the arts faculty collaborate frequently through work on extracurricular performances. Nevertheless, the music subject area maintains a strong individual identity, particularly for students at GCSE and A-Level age. While the music subject area has a clearly articulated place within the performing arts faculty and wider school, the ethos for music education is largely defined at the department level. The autonomy of the music subject area is demonstrated in particular through articles in the school magazine that regularly reports on musical activities in the school, through its location in school and through policy documents that clearly identify "music department aims" and "music department targets".

The department occupies three classrooms in close proximity at the far end of the school from reception. In addition they have a music office and two practice rooms that sit next to the main music classroom and which are accessible from the corridor. Two further small rooms for instrumental lessons are accessed from a school hallway, a short walk from the department area. Finally, a well-equipped recording studio and sound booth are located at the front of the school together with the dance and drama studio. The facilities in the department include a wide selection of acoustic instruments, including guitars, drums, keyboards, bass guitars and amplifiers as well as pianos and other classical musical instruments. Together with a room of 15 PC computers with a selection of music software

including *Cubase*, *Reason* and *Sibelius*, they have a suite of *Apple Mac* computers and a recording studio used predominantly by the music technology examination groups.

The department's statement of aims suggests that practical music making is central to the department ethos. Val (the head of music) writes that the department is committed to:

- Supporting and developing extra-curricular activities, such as choirs, orchestra and other ensembles as appropriate.
- Promoting participation in, and attendance at, regular live concerts both in and out of school.
- Liaising with other departments such as drama, art and modern languages in school productions and presentations.
- Encouraging the use of information technology in the department for creating, recording and performing music.
- Fostering links with the wider community by performing at other functions and to develop links with our feeder middle and primary schools by performance and visits[9].

These aims suggest to me that the department's focus on practical music making is closely linked to an underlying purpose of fostering relationships with the wider community, a notion that was born out during my visits across the year. This appears to run parallel with the school aim of looking outward to the community. Yet, as with the faculty ethos statement, there is no explicit mention of individual learners. Indeed, the image that for me came to characterise Stourbank's music department was that of a department which keenly promoted practical music making but did not always meet the needs of some individual learners.

Having said this, the breadth of musical opportunities available could indicate a desire to engage with individuals with many different tastes. The department consistently rehearses choirs, orchestra, stage band and rock bands as well as providing instrumental lessons on woodwind, brass, percussion and string instruments, including guitar and drums. They go on trips to varied locations such as a Glyndebourne theatre workshop, a composing day at Snape Maltings and an ATP festival, which is a music festival in holiday camps in East Sussex and Somerset, England that attempts to move away from the larger corporate music festivals and allows space for more intimate settings and avant-garde, underground and post-rock artistic forms. Over the course of the year much time was spent rehearsing for the "High School Musical" production. Yet while a wide range of different activities are available, the composing events they organise are restricted to activity that focuses on the production of traditional music forms rather than the exploration of new ideas. Indeed no extracurricular activity was seen over the course of the period of study that was not focused on the presentation of a predetermined series of musical conventions.

When viewed in the light of my impressions of the school's outward-facing successes, this restriction of department-led practical music making and presentations to 'musical works' presents a significant possibility. It is possible that the need to maintain regular

[9] Department handbook P3

performances at events which maintain the school's status of 'excellence' in the eyes of the local community impacts upon the department's capacity, or even willingness, to provide musical opportunities that have less tangible outcomes or which might not be viewed as favourably in a concert presented to the local community. This notion is only conjecture. However, as I present the two individual students whom I came to know over the course of a year as they worked in their music class lessons, I will present stories which appear to support the idea that in focusing on an adherence to convention to attain 'good outcomes', the department ethos constrains, and sometimes may even preclude, more substantial musical learning. Before presenting Sam's and Emily's stories, I will first introduce the class in which both students worked and also the composing tasks that occupied their lessons across the study.

4.4. THE CLASS

The class I worked with in Stourbank school were studying for their GCSE music following the OCR specification (OCR, 2008). The class was made up of 28 students: 16 females and 12 males. Above I noted that the classroom was equipped with only 15 PC computers; thus for both of the two composing tasks which took place across the year the class teachers and students had to manage access to this equipment.

Throughout the study, composing fell within the context of music classes working towards this examination. The OCR specification dictates that the first of two compositions may be for any instrument, while the second must be based upon the features of two pieces students have studied and played on their instrument. These compositions are ultimately assessed by the class teacher and moderated externally in relation to assessment criteria set by the awarding body: "capability of the resource", "conventions and structures", "features of the style" and "processes and procedures of the genre". It appears from these criteria and the statements which accompany them (Appendix 6) that for the purposes of the OCR examination, composing is an activity that requires students to demonstrate their ability to handle musical conventions. These examination criteria again suggest a tendency towards convention and attainment at the expense of individual development, which I have previously suggested may be reinforced by the school's status as an arts college with a focus on the local community. Thus it could be argued that the ethos of the music class in which Sam and Emily work prioritises mastery and convention within the structures of an examination regime, the school ethos and the school's arts college status. Set in this context the class teachers then face the challenge of navigating a path through these imposed structures in order to deliver a curriculum that meets the needs of each individual student and, in so doing, fosters a broader notion of meaningful musical development.

At this point, therefore, I will demonstrate how during Task 1 Emma's (the PGCE trainee) attempts to navigate these structures and parallel shifts in pedagogy and tasks across the course of the study form an inseparable part of the context in which composing takes place. We will then look briefly at the contrasting context of Task 2 before moving on to introducing Sam and Emily.

4.5. TASK 1: A DEVELOPING PEDAGOGY

During the current study Emma was a trainee music teacher who was being supervised and mentored by Val, the head of department, through her final two terms of training. The first composing task was part of a unit of work designed by Emma, who worked with the class during the first two phases of the study. She visited the school as part of a second and final placement of about 18 weeks. As part of their placement trainees on the PGCE course are expected to complete a research-based assignment which seeks to foster critical reflection in trainees about their own classroom practice. Appendix 7 contains further details of this task. Emma adopted the following title for her project:

> 'Oom Pa Pa, Oom Pa Pa, What Do They Know?': Assessing the compositional processes at work in a year 10 waltz project. A critical investigation[10]

The assignment was based on a section of work which fell within the *Music and Dance* topic of the OCR GCSE specification. Emma explained that she was given the task of 'writing and delivering a series of lessons on the Viennese waltz topic, culminating in a composition brief for potential composition 2 submissions next year[11]'. To do this she devised a scheme of work based upon assessment strategies which would allow her to ensure that pupils met the criteria for assessment. She wrote in her logbook:

> I would need to assess each pupil as they progressed through each planned lesson and adjust my teaching to suit all ability levels to ensure that each student achieved their potential. The students would need to understand what they needed to do to meet the required standards as set out in the GCSE assessment criteria and, more importantly, they would need to know what they had to do to improve throughout the topic to get a higher mark. To ensure that my teaching was effective, to make correct judgements and to provide useful feedback, I needed effective assessment strategies[12].

It appears from her description that the GCSE assessment criteria were at the forefront of her mind during the construction of the unit of work. As we have previously discussed, these criteria appear to direct readers' - in this case Emma's - attention towards the mastery of certain conventions. However, at this stage in the study there was no evidence that Emma was aware of this influence.

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[10] PGCEA p1 (See Appendix 11 for list of data name abbreviations)
[11] PGCEL
[12] PGCEL

From the outset of the task, rather than looking at the needs of the individuals in her class, she chose instead to adopt a model devised by Andrew Peggie involving 'the process of creative compositional development' that featured in the course reading materials. Peggie's model suggests that compositional processes entail eight sequential stages: Conception, Exploring, Observing, Creating, Testing and Rewriting, Rehearsing, Performance and Evaluation. In response to both the GCSE assessment criteria and Peggie's (1997) model, Emma produced a unit of work that worked through a highly structured series of activities which all students would follow. A lengthy critique of Peggie's model is beyond the scope of this discussion. It is enough for our purposes to know that Peggie's sequential stages depart significantly from the research discussed above as he attempts to set students' creative processes into a framework alongside points of teacher intervention. An example of Peggie's departure is seen in his failure to account for the literature demonstrating that students' creative processes follow different pathways and that the stages students may move through are not linear in their deployment. In Section 2.4 we saw that stages may be recursive and may occur several times as part of an individual's composing process. Thus Peggie's model is only one example of many possible composing processes. For the trainee Emma, Peggie's model may well have offered a helpful match between the need to provide a scaffolded (Bruner, 1966) approach to learning and the need to help students finish compositions to meet the examination assessment criteria.

It is important to note that, as a trainee teacher the notion of 'pedagogy' represented through Emma's story in the current study, does not characterize a well-developed or broad understanding of the concept. Schulman's (1986) view of pedagogy or 'how to teach' is helpful in that he positions it as part of a relationship that also includes content knowledge, or 'what is known' (p. 6). His notion of 'Pedagogical Content Knowledge' also allows the focus to widen out from merely concentrating on the 'rules and tools' of teaching, but also positions these in a way that links them inextricably with 'what is known' or perhaps in this case 'what is taught'. Yet, it can also be argued that Schulman's construction is in danger of promoting a Banking Model of education (Freire, 1970) within which a student is seen as an 'empty vessel to be filled' (p.60) with 'content knowledge'. It may be said that such a Banking Model would involve a restricted formation of knowledge as that which is reified or objectified. Nevertheless, if one only considers pedagogy as 'what to teach and how to teach it', then the teacher arguably reinforces static notions of knowledge, positioning themselves as experts by virtue of their authority. Instead pedagogy in a wider, more ethical, sense can be thought of as a praxis; that is 'the action and reflection of men and women upon their world' (ibid.). In this sense the trajectory presented in Emma's story represents just such a developing praxis, as she also

positions herself as a learner; reflecting on and beginning to adapt her practice during the study as well as developing an extensive range of knowledge and understanding. However, as the focus of the study was students' compositional development, while Emma's story of her developing pedagogy runs alongside these processes, it is not of primary importance.

The impact of Peggie's model on Emma's developing pedagogy may be seen through her use of background materials and then a booklet which took students through seven sequential stages. Peggie recommends that teachers introduce composing through the use of ideas:

> All creative projects need two (precisely two) ideas. The first should be generalized: the sea, the environment, time, a journey. The second must be specific and will usually be framed in the form of a question: what if the sea is about to break through a dyke?..the same process can be applied to purely musical starting points (Peggie, 1997 p. 22).

In the excerpt above, Peggie also suggests, rather forcefully, that two ideas should be used, one general and one specific. If we now turn to Emma's unit of work, she used some introductory sessions to provide background material and explore features of waltz compositions through performance activities based on 'Oom Pa Pa' from the musical 'Oliver'.

> I gave them a historical background of various composers and we also looked at the structural make-up of some of the waltzes and tried to relate them to these as well...I sort of tentatively set out lessons that would introduce the children to waltzes and be able to pick out, you know, the Oom Pa Pa in any listening that they did and I wanted them also to play waltzes, I thought that was quite an important part[13].

From this we may deduce that the 'general idea' from Peggie's model was that of a waltz. While the efficacy of such a starting point may be questioned, according to Peggie 'a purely musical starting point' would be sufficient. Thus from Emma's as yet somewhat limited perspective the notion of a waltz may have appeared suitable. A more specific idea can be found in the booklet which served to support and organise the composing activities (see Figure 4.1). It can be seen that this booklet structures students' composing processes in terms of a series of stages towards demonstration of the techniques defined in the marking criteria: firstly considering structure, then the bassline through to accompaniment, recording, adding a second section, a melody and then an introduction and a coda. These features are examples of the musical conventions noted earlier. The booklet reflects the intended progression of composing lessons through the unit and Emma's explicit intention was to record the students' composing processes.

[13] PGCEIF

> I gave the pupils opportunities to revise features of the waltz and scaffold theory aspects for using primary chords and inversions as a starting point for creating a waltz-style accompaniment. I gave out assessment charts and composition booklets to record progress[14].

The excerpt above indicates that for Emma the more specific idea suggested by Peggie's model is that of primary chords and inversions. We can also see in the booklet (Figure 4.1) under Section 3 that Emma asks, 'Are you going to use root position chords or be more adventurous with 1st and 2nd inversion chords?' The position of this question as one of only two questions in this booklet supports my interpretation that Emma's structuring of the learning at this point is influenced by Peggie's model. He states, '[composing ideas] will usually be framed as a question'. Thus, Peggie's model appears to have significantly shaped Emma's initial design for the learning.

Emma goes on to describe how the worksheet was used during the first lessons in the unit of work:

> There was a lot of the worksheet in these lessons because I was using it a lot to begin with and then it gets put to one side, you know, when you set up working ..they work on their compositions and the weeks go by…and I felt it would be an easier way round to teach them the accompaniment first or get them familiar with the accompaniment first and then for them to fit a melody over the top of their accompaniments.

From Emma's description it is clear that her intention was to *support* the students through the worksheets and, by extension, the use of the computer (step 4 on the worksheets). However, it is also the case that both the worksheet and computer were necessary to meet the assessment demands placed on the teacher. Indeed my field notes support the conclusion that completing the worksheet and recording the composition onto the computer were both compulsory parts of the task design[15], perhaps for this reason. As examination coursework it was necessary for students to record the compositon onto the computer to produce a tangiable musical product which could be marked according to the technical critera laid out in the OCR specification. Further, the worksheet was a solution to the student teacher's need for evidence of her class's ongoing composing as part of the work towards a PGCE assignment. Thus a case could be made that the external assessment demands on both trainee and student were instrumental in the development of a composing task that was structured in such a way as to advance a restricted set of possible composing processes. The students' approach to this task was to build upon examination criteria that focus on technical musical devices and features within a set genre, using a model of creativity that accounts for only a handful of many possible composing pathways. In addition, it is possible that worksheets and computers were a compulsory part of the task because of the assessment demands on both students and teacher.

[14] PGCEL
[15] FN 2.1, 2.2, 2.3

Following the initial stages of working in the booklet, students begin to work with digital technologies in the form of *Cubase* and a MIDI keyboard (3.4). At this point, there is a change in Emma's approach on which she reflects:

P: Was there a change at this point from something which was initially driven by you…where you start giving the marks and giving them the assessment criteria there's a shift saying, "This is your composition and…this is what you're getting to now." I don't know, is that fair?

E: I think, yeh! Well, yeh! **You mean I'm letting go? They're sort of taking it away, running with it on their own a bit more. Yeh! Yes, definitely!** Definitely!

P: There seems to be a shift here…and you're more as a facilitator than an instructor at this point.?

E: Yes, definitely! Definitely, and I think their work shows that. Definitely, because I think you need to give students freedom to create their own work and like you say, as long as it went along the lines of the criteria or, you know, what I wanted them to produce - a waltz - that was the aim so…

I think that what I'm saying is that **I felt that my whole scheme was very dry and there wasn't enough music playing and exploring** and but then sometime.... I mean in terms of doing a waltz there are a lot of rules that they probably would need to learn in order to...but I think they could have been injected in later.

I think that we needed to really be confident at exploring and testing out ideas and having that...make...you know creating our own styles of pieces.

Emma's reflections indicate that shortly after students began to work on the computer, the rather closed and booklet-driven structure of the lessons was relaxed. Emma became aware that her scheme was 'very dry' and so students were given the 'freedom to create their own work'. Evidence of the features of this shift can be seen in the field notes which reveal that after the first few weeks of work students stopped using the booklet and began to explore ideas on musical instruments and on the computers without reference to the booklet and in different orders. For example, some began with a melody, while others began with an 'Oom Pa Pa' accompaniment[16]. These transformed composing processes were notably different between students, as will be seen in the following sections.

A further note about Task 1 is that towards the end of the waltz project Emma was coming to the end of her course and making fewer visits as a consequence. As a result Val - the head of music - had a greater input during the final two weeks of the task. As the author of the music department ethos, one might expect Val's pedagogy to be in line with the aims of the department (see above) and to reflect an approach that favours practical music-making, with the focus being a polished musical product, ready for presentation. This change will be noted as we move on to look in more detail at Sam's and Emily's composing processes. Recordings of Sam's and Emily's compositions for Task 1 can be heard on Tracks 1 and 2 of the attached CD (Appendix 8).

[16] FN 6-7

[redacted]

24/2/09

GCSE Music

SCANNED

Area of Study 3 – Dance Music
Viennese Waltz

Name: ……

Composition 2:

You will compose to a brief based on the Waltz style studied in Area of Study 3 (Dance Music).

Composition Brief

To compose a piece for …… (which instrument(s)?)

in a waltz style that uses …… (what composing techniques?)

……

……

4. Record your waltz in progress.

Target: Use Sibelius, Cubase or other recording method to record your work in progress.

5. 2nd Section Accompaniment

Target: Repeat steps 2-3 with a contrasting 8 bar section in a related key. Remember to stick to your intended form.

6. Melody

Target: Compose a waltz melody to fit with your accompaniment sections. Try to include at least one chromatic note in your melody. Try out some ideas on your instrument then write them out on the staves below. Don't forget the time signature and key signature.

7. Introduction and Coda

Target: Write a short introduction at the start and a short coda at the end of your composition. These sections could each be 4 bars long.

SCANNED

1. Structure

Target: Decide on the form that you intend to use for your piece (e.g. binary form, rounded binary form). Describe how this structure works.

……

……

2. Bass Line

Target: Decide on a sequence of chords for an 8 bar, single note bass line using chords I, IV and V.

Write out your bass line on the bass clef staves or tab below. Write in the time signature and key signature too.

A C E G
G B D F A

What rhythm are you going to use for this bass line?

3. Accompaniment Pattern

Target: Create your waltz style accompaniment pattern using the chord sequence designed in section 2. Are you going to use root position chords or be more adventurous with 1st and 2nd inversion chords? Write out your accompaniment pattern on the staves or tab below:-

F A C E
E G B D F

A C E G
G B D F A

Don't forget to put in your time signature and key signature.

Figure 4.1: Booklet used to structure students' composing processes.

4.6. TASK 2: MORE FAMILIAR MUSIC

Over the course of the study Sam's and Emily's music class was involved in two main composing exercises that were opportunities for them to develop their musical understanding. In addition these exercises were opportunities to produce examination coursework which would form part of the final grade. Thus across the year the focus of students' composing activities shifted from the waltz composition to the second brief which was set by the students in response to their performance piece. In the previous section we looked in some detail at the waltz task. Working forward from this, I will now outline four key shifts which outline the contrast between the first waltz task and the second task.

Firstly, Emma finished her placement during the summer term, which coincided with students' completion of Task 1. The class began Task 2 in the September after their summer holiday and so Val led Task 2 on her own. While Val was responsible for students' progress through Task 2, during the autumn term there were several occasions on which she was not in school music lessons due to external visits. Thus aside from the setting up of the task and occasional monitoring of individual work Val's direct impact on students composing process was minimal. In a class of 28 students it was impossible for Val to give more than a few minutes of targeted support for each student during this task. However, these things aside, it is true that there were two significant pedagogic shifts between tasks: i) from team teaching by two teachers to Val teaching on her own; and, ii) from Emma's leading the first task to Val's leading the second task.

Secondly, the GCSE examination specification (OCR 2008) requires a composition for the instrument on which the student plays their solo performance piece. In addition, students are required to choose a feature of their solo performance piece for use in their composition, along with a feature from each of two further pieces. For example, they might choose the style of their solo performance (blues) , the time signature of a second piece and the instrumentation of a third piece. Task 2 required the completion of his composition. As students were able to select their own instrumentation and features for this second task, it is arguable that the music with which students were working was more familiar to them than the waltz during the first task.

Thirdly, the waltz-composing task ran across lessons from 3rd February until the 13th May, a period of about three months. In contrast the second composing task took place between

4th November 2009 and 9th December, just over one month[17]. Thus the timescale was significantly shorter for the second task.

Finally, as the second task was directed towards the students' own instruments and choice of features and due to the relatively short timescale, the teacher did not construct a worksheet formally to assess and guide the students' composing process along the way[18]. Instead the worksheet shown in Figure 4.2 was given to students to support them in keeping a log of their work. In addition no formal assessment was conducted during the composing process. While the worksheet for Task 2 asks students to identify a specific instrument, features and a style for their piece, taken together with Val's absences from lessons, I came to see the second task as involving less teacher support and less of a focus on specific composing techniques.

In summary, the second task was underpinned by a different pedagogic context, involved a more familiar set of musical styles and features, was shorter and was completed with less teacher support than the waltz task. Sam's and Emily's final compositions for Task 2 are recorded on Tracks 3 and 4 of the accompanying CD (Appendix 8).

[17] PGCEL, FN 6-7, WS 3.1, FC.
[18] FN 6

GCSE Main Composition

NAME Task Sheet

Before you start you must:

1. have recorded your solo
2. have identified the genre for your solo
3. have found two study pieces in that genre

Your first task is to identify one musical feature from each of the three pieces, your solo and the two study pieces and to write a composition brief.

Answer these questions:

1. What instrument are you writing for? .....
2. What feature are you using from your solo? .....
3. What feature are you using from study piece no. 1? .....
4. What feature are you using from study piece no. 2? .....
5. What style will your composition be in? .....

WHEN YOU HAVE ANSWERED ALL OF THESE YOU CAN START!

It is important that you keep a log of your progress so that you can remember what changes you made to your original brief. The exam board will ask you to write about these.

Day	Date	Progress chart
Wed	4th Nov	
Wed	11th Nov *	
Mon	16th Nov	
Wed	18th Nov *	Student review day
Wed	25th Nov *	Mock exam
Wed	2nd Dec *	

Composition coursework club will take place on Wednesdays after school on days marked *
Recordings will take place on Monday 7th in the studio and Wed 9th December in L20 after school.
NB. Compositions on the computer do not need to be recorded.

Figure 4.2: Worksheet from Task 2.

4.7. SUMMARY

We have seen that two key aspects of the school ethos involve looking to the community and tailoring learning to the individual. We also noted that, somewhat surprisingly, both the faculty and departmental ethos statements focus less on the individual than was the case at the school level. I have presented evidence to show how in practice individual music students are directed towards predefined rather than individually developed ways of composing through the extracurricular opportunities and class composing tasks. Set against the school's community priorities I have suggested that the need to maintain regular performances at community events may restrict the degree to which the music department can cater for the needs of each individual due to the need to provide activities which produce visible outcomes, such as a community concert. In addition I have suggested that the GCSE examination criteria focus on adherence to convention through their reliance on borrowed musical features. Finally, I have illustrated how Task 1 was underpinned by a developing pedagogy which moved from heavily structured and paper-based ways of working to a pedagogy which allowed students to work according to their own approaches. In contrast during Task 2 students worked with a more familiar set of musical styles and features across a shorter time frame and with less teacher support than they received for Task 1. With this context in mind, we will now examine in detail the work of the two students, Sam and Emily, over the course of the research.

5. FINDINGS PART 2: SAM

5.1. SAM AND COMPOSING

The first student I will introduce is Sam. For me, Sam's story demonstrates the impact of prior learning and experience on his formulation of new ways of working and also on the nature of his transformed composing process. Several considerable experiences of practical music making outside school position him, at the start of the course, as a musician who has little formal musical tuition but instead has a remarkable breadth and wealth of expertise in collaborative and informal music making. His passionate views of music and music making as exploration and expression set him in silent opposition to a school music tradition he describes as 'boring', 'obvious', 'irritating', 'set' and overly 'classical'. At the same time, it seems that his trajectory through the course is an active search for, and exploitation of, opportunities both to work within and also to transform this tradition.

5.1.1. Sam 'The Explorer'

To introduce Sam, I will use his river of experience, which is shown in Figure 5.1 and which was used as a stimulus for discussion about his personal musical history. The significance of Sam's earliest experiences of music making can be seen in his choice of four significant childhood events to describe himself. These are illustrated in his river of experience and describe his mother, father, great grandmother and brother.

A musical family

During our conversations Sam speaks about the amount and breadth of material that his mother sang when he was younger. His description of the experiences as 'random' suggests that the nature of these interchanges were rather unstructured and free. At the same time, they appear to have been fun as he talks about them as 'brilliant', and says that he 'misses those days':

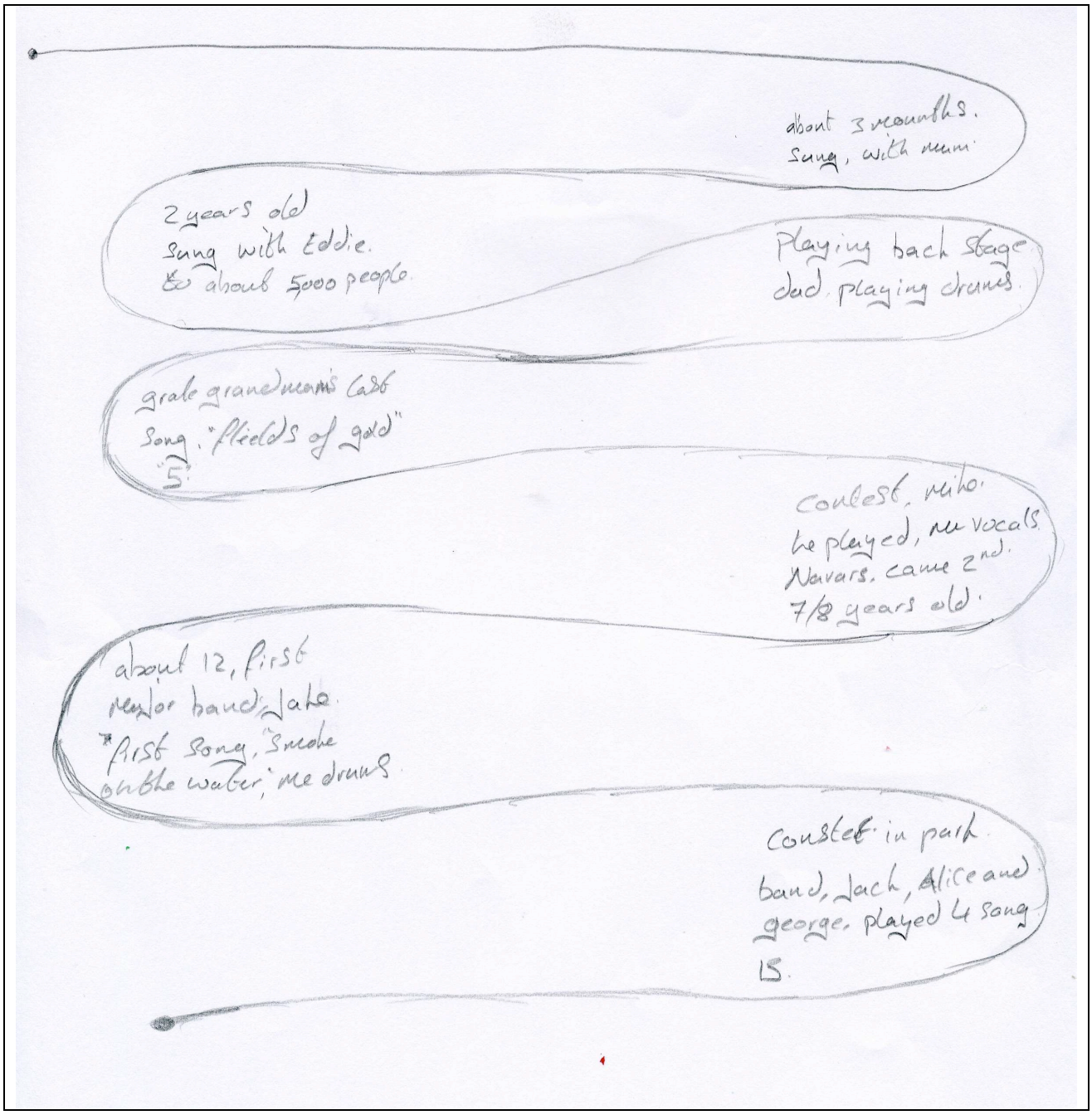

Figure 5.1: Sam's personal river of experience.

> S: The first ever thing was singing with my mum when I was about 3 months old. She sang loads of different things like 'Hey Nanny Nanny', that kind of thing and just random things from being really young. [It] was brilliant. I miss those days. Oh, what was the last song we sang? Do you know the nursery rhyme 'The cow jumped over the moon?' That's the last one we did. I'm never going to forget that now.

Alongside this, his father's expertise, encouragement and 'rule bending' in order to involve Sam in his world as a young boy seem to provide for Sam an informed perspective from which to speak about music making in a professional context. This passage for me highlights the importance of personal relationships in his world as he speaks of 'Eddie' and 'Austin', with whom they are still in touch.

S: My dad was in Texas Night Life... really popular band in America and as I knew all the people inside of it, I sang with the lead singer called Eddie with a song called ... oh it was a really old country song as well...it was...oh, I don't remember it. But, yeah, I sung that on stage in front of about 5000 people with Eddie. I was about that tall compared to him. I just sat there and sung to everyone and it was amazing . It was brilliant…haven't seen Eddie in ages, though, cause he moved back to America cause he was in the forces so we should hopefully be seeing him soon but later this year when we go on study leave and sort of stuff. That will be brilliant cause he had a young kid as well who was about a couple of years younger than me called Austin...and backstage with Dad in the same...same gig really…playing backstage..I was technically not meant to be backstage but my dad took me backstage and said 'This is what it's like and we just messed around on these drums and stuff[19].'

This passage also highlights the sense of melancholy with which Sam speaks of the past. A further example of this is seen in his descriptions of his relationship with his late grandmother.

The next generation

Sam moves on to talk about his grandmother whose necklace he owns, her only surviving possession. In an earlier interview Sam described how his father was a jeweller until an accident damaged his eyesight. With this in mind it may be that the necklace symbolises for Sam his place in the family, hence his reference at this moment. He has his great grandmother's necklace, and his father and great grandmother were both jewellers. In a similar way that Sam owns her final possession, the necklace, so also he shared her last song. Thus it appears that just as the family jewellery has been passed on to him so too he may feel that he is carrying on a musical tradition that has been passed down through his father.

S: After that there was great grandma's song. Cause unfortunately great grandma died but her last song was 'Fields of gold' which I sang with her before she passed away.
P: The Sting one?
S: Yeah. And that was about 5 I started doing that. Great grandma was funnily enough a jeweller as well and she used to do the rocks, polishing rocks and stuff. Oh yeah, so I've got my red tiger's eye necklace is the only possession of great grandma's that still lives. It's a lovely necklace...and I love it…it's brilliant . But it would be nice to see her again.[20]

In a more recent interview with Sam, where we revisit the research to verify my findings we discuss this image of Sam's grandmother. While Sam has not seen the necklace in this way, he agrees with my view that there is a strong parallel between the importance he attaches to the necklace and the importance to him of his grandmother's musical legacy through his father and on to him. Rather emotionally he speaks of performing at her funeral and talks about his grandmother as the source of his father's music making:

[19] SIPF
[20] SIPF

S: Yeah! There is a slight link between my grandmother and the necklace and music in that my grandmother also did music as well. That's where my dad got his music from and it just went down the generations.

Thus it seems that there is a strong tradition of family music making that goes back before his father's music making. Following this pattern of the importance of music in Sam's family, we can then see that the fourth event in Sam's river of experience is a contest into which he entered with his older brother.

S: Oh…did it with my older brother Mike, he played guitar and I was doing vocals at the time and we did, which one did we do? I think it was Nirvana's ...one of Nirvana's songs...Can't remember which one now but him and I came second. That's really good…out of…oh how many pupils? 500 people were there.
P: And when was this?
S: When I was about 7 or 8. and I still have the...cause we got a trophy as well from that so now I have it in my room. Cause my brother and I, our rooms are near enough next to each other and I got to keep the trophy. [21]

Thus I came to know Sam's family through his descriptions as one which has a strong musical identity that is articulated through four generations: in nursery rhymes, country music, popular rock and grunge.

Multifaceted music making

I found it notable that all of the occasions illustrated in Sam's river of experience are concerned with what could be called practical musical, which allows him to express his identity as an individual and also as a member of a family to whom music is important. The final experiences are two band performances with his friends. While singing with his mother can be seen as a teaching experience, the language is one of joint activity and so they are better described as joint performances. The significance of this is highlighted when seen alongside discussions of his instrumental abilities. Sam's saxophone lessons were originally based in school and are improvisational in nature using jazz 'heads' as rehearsal material.

P: Saxophone – can you tell me about that one?
S: Yes! That was actually a stroke of luck saxophone. My middle school before I left…my old music teacher was saying about lessons and how they are going to start up saxophone lessons and anyone can join so you had myself, my friend Freddy Bubble and Holly, funnily enough, who also joined at the same time. And learned to play the saxophone. I got some teaching from Miss D who was the saxophone teacher and when, cause I left halfway through year six to be home tutored. But I had to give up my saxophone as a consequence of it and I didn't actually play saxophone for about 7 months in that time period. And then I went out and bought myself my saxophone the blue one – and then I picked it up and I couldn't play. I just picked it up...no, that was really the wrong note. And I started doing it on my own, but that kind of didn't work so I have been having lessons with [him] for about 2 years now doing jazz. Basically just sitting there just doing anything we want on the saxophone.

[21] SIPF

S: I go in, I set up my saxophone, we're having a laugh whilst I'm setting up my saxophone with my teacher, my saxophone teacher's completely barking mad. He's got several saxophones so he just pick up the sax, I put my sax together, stand up, have the music in front of me, there's about 9 bars of written melody and then chords over the top of the improvisation....entire huge section of improvisation where you can do absolutely everything you want as long as it sounds half decent. And we play through that and then we can go back if I've done something very very wrong, for instance, say we're in going up to a bar which is C6 with a flattened 9th I could play, it's as if I continually play the 9th, we'll stop, go over the chord, go back to the circle of 5ths, cycle of 5ths even, talk about that, go into what the chord is, find out everything that's in the chord and then go back to doing the piece and then we'll just, I keep messing about, keep going back over it and over it until I get and then when I get it we'll just play, whatever we want ..but we also do some lessons which are , instead of backing tracks he's also good at bass, er up double bass and piano, my saxophone teacher, and he'll take a piece like 'Almost Being in Love' he hasn't got a backing track to that but he' s got the music for it so he'll play, he'll play the chords and stuff on the double bass, I'll play the melody and we'll do it that way as well.

The improvisational nature of his saxophone lessons underlines the importance of experimentation in Sam's musical experiences. He describes how he started with formal lessons in school but these ended when he was taken out of school to be home tutored. In a further interview it is revealed that he was taken out of school because his parents were not happy with his lower school[22]. It is also notable that Sam did not attend school with his peers again until year 9. Thus at the time of the research he has just begun his fifth term back in school. Furthermore, his parent's decision to remove him from school underlines the strength of support he receives from home and that they are not afraid to take action according to their own beliefs rather than relying on institutions to manage their child's education. This willingness to act is underlined by a conversation amongst the music staff, which is recorded in the field notes:

The music staff had short conversation about Sam's family after I asked what his family were like. They have been into a school on several occasions to raise issues related to language in films shown at school and song lyrics. The staff suggested that they have a religious background and also suggested that the children 'dress funny'; the 'older brother wears black from head to foot'.

It is also notable that Sam does not describe his family in these terms. However, during the final verification interview with Sam he reflects back on his experiences:

S: A couple of years ago I would have been more childish about how my parents supported me. I would have been just naive about what they've doing and just said they, kind of, want to control my life.
P: So it felt kind of restricted did it?
S: Yeah! In a way…for instance just having set times for when I need to be in bed and where I need to be…and basically having a whole set of rules I had to live by. Compared with my friends I felt that they had all the time in the world and I was being tugged on a leash.

My mum's dad was…I think he was a choirboy and he read the Bible and took all these things from the Bible…and then my mother's dad came out of church and is now atheist and the morals just went from him to my mother and then from my mother to my entire family…and we've just always been told morals and quotes from the Bible.

[22] SIPF

I understood by this that Sam recognises his parents' strong influence on his upbringing. Yet, the way in which he speaks about them indicates that he appreciates the framework they have provided.

Sam also plays the drums, saxophone piano, and bass. Sam's drum lessons appear to be the most traditional, yet they are with his father and while they include drum technique, they focus on popular music styles as well as improvisation. Thus even the most formal lessons are not 'formal' in a musical sense, focusing on popular musical styles and jazz. The apprenticeship model upon which his lessons appear to be based is nicely described in Sam's own words: 'free moving'.

S: I do drums, which I have been doing since I was knee high to a grasshopper. You see my dad is a drummer and he used to play in gigs, like Blackjack. He was the drummer in Black Back and I got it from his the whole music thing. We started doing drums and I just took it from there. I also do saxophone which was my third instrument I picked out. Just before that the piano. I kind of looked...we had a not a grand piano...one smaller than a grand piano...

P: Baby grand?

S: That's the one. And it was just sitting in the room and I thought ..dunk (gestures playing) hey, that's a nice note and I kept playing it and I just taught myself to play the piano.

P: Right! Was that the same as the drums?

S: No, I got... Dad gives lessons cause he's a drummer. No, Dad's been teaching me drums since about 4. And I still do drum lessons as well on the odd here and there. Cause my dad does a lot of drumming now…since I was about 2. Up to nowadays really. And mostly at home cause there was a drum kit set up in the room so cause we have a music room outside, which I told you about, and there's always one set up out there. So I just went out there and played. With the drums there's a set thing. We go over rudiments...oh, sorry, we warm up first, which is usually trading fours, which is we start off with a really simple pattern (example) and we play that and after 4 bars one of us shadow a bit of improvisation for a fill and then we'll just play for another 2 bars and the next person who has the next verse will do it and then so on and so forth. That's done, we then go over the pieces that we do, which at the moment is ...I've forgotten their name...but, yes, we go over the pieces we're doing and then we go over rudiments, like flams, paradidles, drags that sort of thing...also there's another thing we do called Moeller technique, which is drumming technique. Cause normally you have drum sticks and you hold them like that way, you have military which is your left hand drum stick instead of being that way it's inverted and comes across that way so your playing down like that, your playing more like that. And the Moeller which is your right hand plays that way when your doing it, and you can either use your left hand as the high hat and that as the snare or you can use that way round, which is a bit awkward, but you can use that way round.

In contrast, both the piano and the bass have been 'picked up' informally and through experimentation.

S: Piano was another one, which the piano was in the room. I did that on my own. Erm, I just picked it up... I sat down and played the piano and just sort of worked out where everything was and I've been doing that since I was 5/6 about.

I don't know it was just sitting there and we had it for years. It' s gone now but we had it for absolutely years and it was just sitting there no one played it and I but I want to play it I want to know what it sounds like. It got sold now. Cause we needed the space but we should be getting that back.

P: Did anybody else in your family play piano?

S: My dad used to play but doesn't really play piano any more.

S: Yep, there's also bass. Bass was with Jake, my friend Jake. Him and I just picked it up one day and said, 'It's got strings, lets play.' And we sat there and worked out stuff for the bass

> and now we just twiddle around on the bass whenever we see each other I think it was because my mum was starting to play her own bass lesson. She wanted to learn bass as well. She started going to [town] I think it was ...started to get bass lessons but she doesn't' do it any more so I've just been doing it on my own. Learning it.
>
> I normally pick up my bass about 4 times a week for a very long amount of time. Yesterday I picked it up cause of a band thing which was this thing I was talking to [friend]. We were playing from after school about 4 o'clock-ish till gone 9 in the afternoon just playing songs. So, yeah, quite a considerable amount of time when I pick up a bass.

From this excerpt I came to understand that exploration is a key aspect of Sam's music-making outside school, both in his lessons when he calls it 'improvisation' and also in learning instruments on his own or with his friend.

While Sam appears to have had a variety of music learning experiences outside school, the most significant have been performances firstly with his family and more recently with his friends. Alongside this, his free-moving lessons and his informal interest in the bass and piano have allowed him to explore the materials of music for himself within the supportive environments of his family and lessons. In each case his musical experience are for the most part collaborative. In addition, he has had significant experience of performing that seems to have given him additional confidence in his ability to achieve through these explorations. As a result, I came to see Sam's view of himself as a musical explorer who, like his father, has been successful enough to share these explorations in successful performances before large audiences.

5.1.2. **Sam's Compositions: Adventures In Improvisation**

In the previous section we saw the importance of exploration and improvisation in Sam's music making outside school. In this section I will present the view that this approach is also evident in the way he composes in school and furthermore, that this exploration of musical instruments and materials is underpinned by a desire to find personal expression through music.

School music: irritating convention

In chapter 4 I introduced the structure of the composing tasks in school. What struck me initially from my conversations with Sam was how much these tasks sit outside his previous experiences of music making. When discussing his views of music in school Sam appears to be aware of this contrast:

> P: Is there a difference between music inside school and outside school?
> S: Oh, yeah.
> P: What...how would you characterise that?
> S: Music inside school, I would say, is very based around how the teacher is. Miss B [Val] does a lot of classical stuff and is classically trained and we seem to constantly do it around classical stuff, which I kind of find irritating. But outside school we're free to do whatever we want. Any type of music, any genre, any music really . The one thing I do like is when we're doing compositions, we have a set time ...it' s like a reason to get it done…urgency to get it right. You can't just sit there and have a chat for ages. So that's a good thing I think. I believe it is anyway but...yeah. Nice room though. (laughs)

While closer to his experience of music making, the second composing task reinforces the restriction of collaboration as a way of working available to students as the examination does not allow for 'joint submissions'. Further exploration reveals that he is also aware that his experiences and achievements in music inside school do not reflect those outside the classroom. In the following excerpt he describes his lack of progress in terms of a lack of freedom to explore the musical genres that are important to him and also the restricted set of styles with which others are prepared to engage.

> P: Looking at how well you do at music outside school and how well you do at music inside school, do you think there's a difference?
> S: I would say that, yes, there is a difference all right. Music inside school I'm doing all right on, but music outside school is astronomically better for me. [because of] just freedom really...of doing what I like in terms of the music.. Just more freedom …to do the music I like, freedom to do the music I wish to do and not be based around solely what the classroom wants. Does that make sense?
> P: Are you talking about styles now or instruments or groups or...?
> S: Just sort of styles and genres of the classroom and in groups as well you get people in groups who want to do set things and won' t change their mind. They want to do, let's say, 'let's go for a group who wants to do rock and blues'. They're set dead on wanting to do that and they won't change their mind. And that means that the others in the group like myself and the others all have to change to be rock and blues. And that's one thing that I really dislike doing is having to change my mind to suit someone else.
>
> I really don't mind doing any type of music but it's just irritating how stubborn someone can be. But outside it's free. you can sit down and discuss what you want to do. You can sit there and do what you want to do. If you want to do rock and blues you can go and do rock and blues, if you want to do jazz you can do jazz, if you want to do completely outrageous way-out-there music, you can go and do completely outrageous way-out-there music.
> P: And you don't find that is true in school?
> S: I don't find that in school - no. I ...I don't really know I would say...not to be mean or anything, but I would say the teacher is mostly the reason. I would say she influences you, or influences the student far too much into her way of thinking, into her way of music that people just start to go and just be like them, and that's one thing that I don't particularly like personally is myself and then you have people who are just the stubborn ones who won't change and will only do one set genre, one set style and won't go and adventure

about other styles and other means of doing playing.

I tried to form a band inside of the school and everyone I found: I found a guitarist, I found a vocalist and a rhythm guitarist but I found a drummer, was one of the hardest ones to find. In the case of [the drummer] he would either do something constantly the same. No matter what piece you were doing, he'd play something like heavy metal and then you'd play something classical. He'd still do the same sort of rhythms and stuff.

But I find you can't sit down and discuss music with people in school. Not unless you know they are musically talented and very, very good at it like Steve. I can sit down and have a discussion about music with Steve. He and I can sit down and have a discussion with music , but then you've got Jess. I would struggle to have a conversation about music with because although she's a lovely person, she's great, but when it comes down do music and theory and stuff, it kind of loses her.

Alongside this, the class data suggest that Sam achieves marks in music that do not match up to the potential implied by his attainment level[23]. The fieldnotes taken from conversations early in Phase 1 indicate that the class teacher feels Sam is not achieving marks as high as she might hope. The inconsistency between Sam's level of experience and commitment to music outside school, on the one hand, and his participation and achievement in school music, on the other, could be explained by his perception that music inside school does not match with his expectations of what music is. However, it also appears to be the case that Sam has made attempts to engage with music in school according to his previous experiences. For example, he describes an attempt to collaborate in year 9 with his classmates during an exploration of different instruments as part of a 'musical futures' project in which students learn to play instruments by copying from recorded tracks, working in groups.

S: I did once in year 9 and that failed completely, miserably. In year 9 you can do, there's things we have no choice but to try, different instruments. You go from guitar, bass, drums, electric guitar, and acoustic guitar. You have to do those 4 in year 9. You go off in small groups, usually acoustic guitars are there, basses are in the dungeon, drums are normally in here. And then you have electrics in Mr T's room.

But you have to do those, and then people in the group were blatantly refusing to play that instrument just because they don't want to, and they don't want to find out what you could do with that instrument. With the acoustic guitar I can't play it but I'm going to give it a go anyway, and I'm going to find out if I could possibly start to play it or not…which I couldn't, but it was fun. It was nice to find out and experiment and adventure with different instruments. But there are people who were so stubborn that they would pick it up and just sit there with it in their hands and not do anything.

P: So how did you try and bring those things from outside school in that context?

S: I told them about how you can do different styles with it: you can do rockabilly, you can do folk, you can do anything you want and with acoustic guitar especially you can do anything you want. You can, if you put your mind to it, you can do it. But they just blatantly refused and said that I was speaking a load of rubbish and I didn't know what I was talking about, but that's people for you. Laziness, stubbornness and, laziness, stubbornness and I would say naivety...being naïve.

S: Why stubbornness?

S: Because it's just stubborn of them not to try...for instance, it's like arrogance really. For instance if you asked me to stand outside and I blankly said no, that's, well, me being stubborn and me being arrogant towards you. It's like you're the instrument and I'm being stubborn and arrogant towards you as an instrument.

[23] Internal school data generated using the National Curriculum Attainment levels

Here it seems that he is describing an attempt to work with classmates, in which they refuse to work on instruments other than ones with which they are already familiar. In contrast, it seems that Sam is willing to have a go and try out the different opportunities presented to him. At the same time, it appears that in extracurricular music he has perceived a similar antagonism towards exploration as a form of musical working. In the following excerpt he describes how he feels about the way others engage with exploratory music making in school.

> S: Why use the word arrogance? Well, personally, I'd just say it was my upbringing. My upbringing is that, I mean, you are polite: manners make a man, do unto others as do unto yourself, that sort of thing. And I just see it as arrogance that some do that and just being a little bit up themselves sort of thing. But yet they'll play that one instrument cause they know they can play it and they almost worried about getting it wrong on a different instrument. Like they'll embarrass themselves or something which personally to me is pretty, I'd say it's more a case of how they kind of put themselves across. Like you get people who put themselves across as really shy people, really quiet and you get other people who put themselves across as mean nasty people and you get some who will put themselves across as arrogant.
> P: Can you explain that with your upbringing?
> S: Because of what I've done outside school compared to what I've done inside school. I just see it as, well, as my upbringing. I just see it as being more of what I think of people. That would mostly be because I either don't get on with people inside of that sort of environment. Like, for instance, the swing band; I tried that and I didn't, really didn't get on well with people inside of the swing band because they were, funnily enough, doing the whole 'I can play one instrument' thing and 'I'm really good at it', and they don't try other things and so on and so forth. That was that! Bands just kind of fall apart in school. You get a band and it just kind of goes different directions.

It appears from this excerpt that Sam has tried to engage within a school context in the form of music-making with which he is familiar outside school. However, it seems that these attempts have been unsuccessful and that he has perceived a degree of animosity towards more exploratory music making from other students who play musical instruments.

Playing but not feeling

At the same time, our conversations about his experiences of music making at his previous school suggest that Sam struggles to find opportunities for expression in more formal music-making activities. The following excerpt suggests that it is the characteristics of the music making and, in particular, the lack of expression which he finds difficult, 'playing but not feeling'.

> S: None .of us in the orchestra talked to each other,. We were all going in our own little bubble concealed inside of it like a…like a glass of Guinness. You have each individual bubble that is on its own but all together you make an orchestra or, in this case, you make a froth on top of the beer. That's how the orchestra was in our school. That's a really nice comparison I'm going to use that.
> P: Do you see that as musical?
> S: I'd say that it's almost music. I'd say it has people **playing music but not feeling music** if that makes sense. It's got no heart, no soul. It' s just people playing music. Kind of like that actually.

When viewed with the data presented earlier, which suggested that there is much on offer at the school, Sam's descriptions of school music making as restricted and formal seems to arise from his experiences of the nature of the experiences rather than because of a lack of provision. Thus, as well as perceiving a tradition of music in school that is not ready to embrace collaboration and exploration as a means of music making, Sam also finds the formal music tradition one with which he struggles to engage. Despite his best efforts to explore ways in which he can forge links between his music making in and out of school, his adventures have led to a realisation in school of the improvisational approach with which he is more familiar out of school.

It appears that for Sam the driving force behind his exploration and improvisation is his desire to find personal expression through the music. Keeping in mind the importance of music in his family and outside school, his statement that what goes on in school is not musical because in school there are 'people playing music but not feeling music' has great significance. Music in school has 'got no heart, no soul'. It is intriguing to note that for his compositions he does not choose his first instrument, the drums, instead he chooses the piano and saxophone. While for the first composition this could be a result of the waltz models provided by the class teacher (4.5) or the MIDI technology available in the classroom (5.2), his decision to use the saxophone in his final composition illustrates his attempts to engage with a tradition which he feels is foreign to his experience. His selection of the saxophone is consistent with his tendency to want to explore new musical opportunities; he is already good on the drums so why spend time on something he can already do? Yet he also has had experience of the saxophone as an instrument that 'works'

in the school music tradition: from his middle school orchestra and his lessons in school. As he now has lessons that match with his preference for exploratory and expressive collaborations, it is possible that he sees the saxophone as a potential 'bridge' between the two worlds. Thus it appears that Sam's views of music and composing as collaborative exploration and expression present critical obstacles in a tradition of school music which he perceives as restricted, overly classical, safe, formal and, at times, arrogant.

5.2. SAM'S COMPOSING STRATEGIES AND THEIR USE: WORKING FOR EXPRESSION

The following section expounds upon Sam's composing process by outlining the five strategies which characterise his way of working across the study. After introducing the process of organising and coding of data from Sam's composing, I will describe how phenomenological reduction led to the strategies which are then used as headings under which I introduce his composing process.

Organising the data

Over the course of 2009 Sam was a member of the year 10 and 11 music class in Stourbank (4.4). According to the critical incident procedure outlined in Section 3.4, following the completion of each exercise, Sam reviewed his work and identified any noteworthy incidents that had occurred during the composing period. These were defined as 'moments of significant change in your approach to composing or to your compositions'. Using this method, Sam identified three such incidents:

- Waltz task - the transition from using worksheets to working on the computer
- Waltz task – working on the computer
- Personal task – working on the saxophone

Subsequent review of the video data and discussion with the class teacher confirmed these incidents as significant changes in Sam's composing process[24]. This process also revealed a further significant change which occurred when Sam began to use material in his composition that originated from working at home with a friend:

> I had a friend over doing that cause he does music as well. But I' m helping him with his composition pieces and listening to record them. And get it from there and him and I was just on the bass and guitar yesterday twiddling around figuring out what he wants and doing that gave me an idea. So I had the idea, brought it in today and tried it out on the bass and it worked, it fit. And I could change it from 4/4 to 3/4 and it would still fit, which was awesome. So I took that and incorporated some of that into the waltz piece, and by the end of it realised that I had got a complete and utter error and had to do it from scratch again …it was light when we went in and pitch black when we came out. [25]

[24] CV2.2, SVM2.2, 2.6, SVSR2.6, FN2.2, 2.4, 2.5, 2.6, SCV2.6
[25] SVSR2.3

These ideas were used with the computers in the second half of the subsequent lesson[26] and so I also included this incident in the detailed analysis. As examples of music making in school, Sam's critical incidents appear to tell a story that presents music in school as something that conflicts with his experiences at home (above). His unfolding composing process appears to reveal a constant struggle to match his personal musical heritage with the demands of a formal classroom music tradition.

5.2.1. **Sam's Five Strategies**

Following Sam's identification of three critical incidents, my first task was to compile the data relating to these occasions in a real-time diary of composing. To do this, Sam's composing strategies were isolated and coded in an iterative process which employed inductive and deductive codes using the NVivo analysis software. Beginning with Sam's VSR interviews, strategies were identified and described using 685 discrete open codes (see Appendix 9). These were then reduced inductively to phenomenological groupings. The coding process was initially inductive. However, deductive codes taken from the literature on creativity in music, which build upon Wallas's (1926) four stages (see Appendix 10), were subsequently considered alongside these inductive codes during reduction. Thus the process of reduction was mediated by the findings in existing literature. Following phenomenological reduction, a subsequent process of coding revealed several context labels (social interactions, physical tools, computer-based tools and conceptual tools) which are discussed further below. These draw on the work of Dillon (2003), Gall and Breeze (2008) and Van Leeuwen (1999), discussed in Section 2.5. Before this, however, I will outline how I came to view Sam's composing process as progressing through five strategies: exploring, time away, recording, crafting and judging. To clarify the origins of the names of each strategy in the Table below (Table 5.1), I have called the codes which emerged during in vivo coding 'Articulated group' as they employ Sam's language. The 'Observed group' is my own account of his strategies and draws on the literature noted above. For each strategy I have included my final definition and a set of inductive codes which were viewed by Sam[27] and myself as sub-categories of each strategy. The articulated strategies Sam used did not differ significantly from those I observed and so these are mapped directly into my 'observed group' (column two). Each is discussed in turn and both labels are used as section headings using the formula 'Articulated strategy: observed strategy'.

[26] SCV2.3, FN2.3, SVM2.3
[27] SVI

Articulated group	Observed group	Definition	Inductive codes	Observed Instances
Twiddling	Exploring	A decision to find a new idea	Finding on the MIDI Keyboard	48
			Finding in L18	7
Blanking out	Time away	A decision to spend lesson time away from the composition	Thinking	20
Twiddling into the computer	Recording	A decision to record new musical material	Improvising into the computer	18
			Drawing into the computer	5
Making it flow	Crafting	A decision to change existing musical material into something more successful	Deleting	13
			Editing	125
			Repeating	6
Judging	Judging	A decision to judge the success of an idea or ideas	Comparing	2
			Evaluating	64

Table 5.1: Sam's composing strategies.

Exploring: twiddling

Exploring is defined by Sam as 'twiddling around to find an idea'. It is fitting that this is the first strategy which is introduced in relation to Sam as, although it is not visible as many times as crafting and judging, it is clear from Sam's background that exploring is a familiar way of working.

An example of Sam exploring on the MIDI keyboard can be seen in the MIDI data collected during the first critical incident[28]. Figure 5.2 is an example of his exploration of Bass lines using the MIDI keyboard. Sam starts by exploring a two-note motif[29] which he then transposes and extends[30]. Following this is an exploration of thirds and fourths. My interpretation of this as exploring was verified by the video and audio data[31].

We see a second example of exploring when Sam begins work on his melody by playing the Oom Pah Pah accompaniment that he has previously recorded onto the computer and improvising over the top using the MIDI keyboard. Figure 5.3 shows the play button active and a MIDI signal being received on Track 2[32]. This demonstrates that the keyboard is being used to play on top of the existing recorded material.

[28] SVM2.2
[29] bar 243
[30] bar 250
[31] SCV2.2 03h37m39s ref 6.
[32] SCV2.2 03h37m39s ref 17

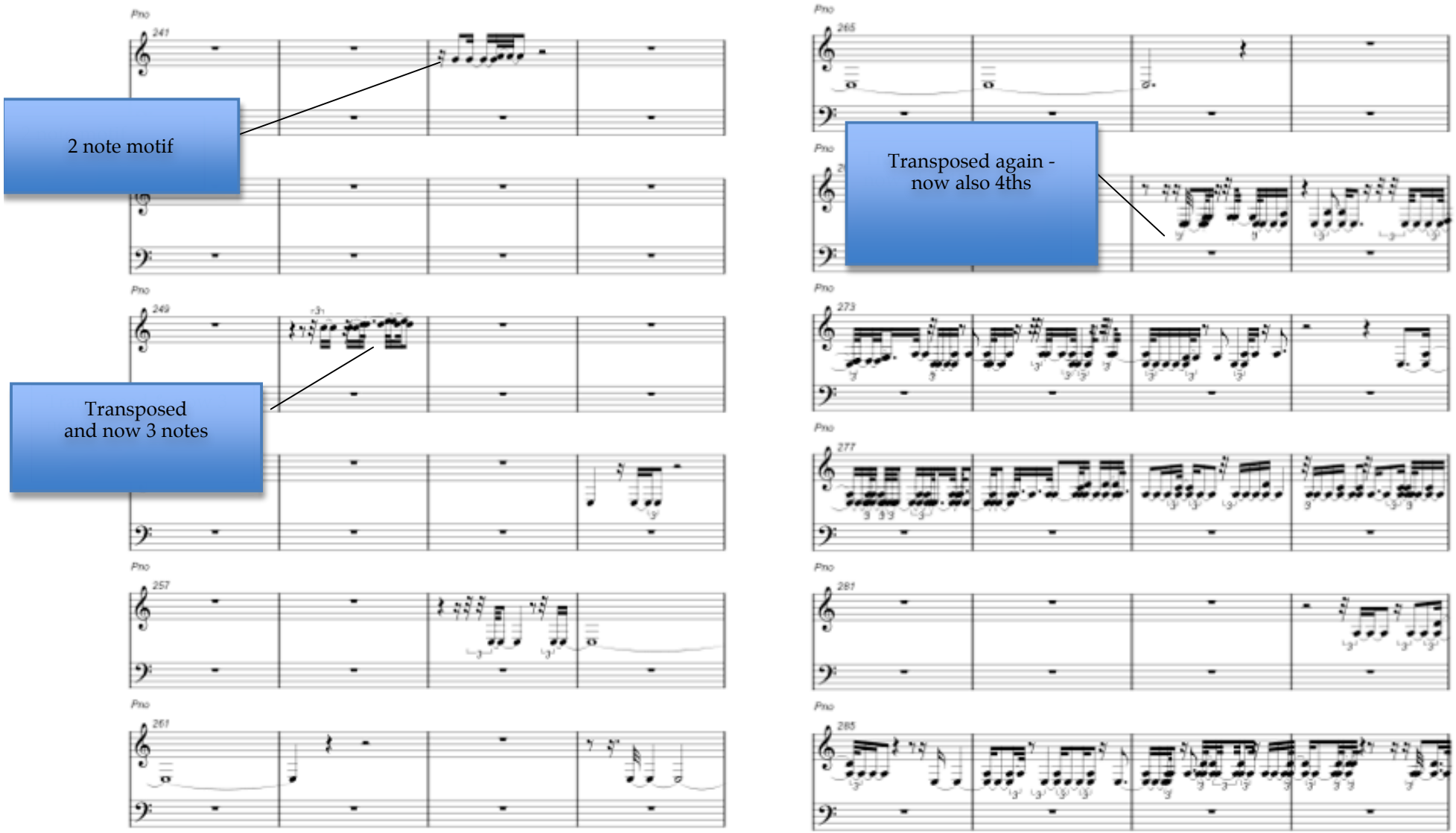

Figure 5.2: Score demonstrating exploration with data from MIDI keyboard.

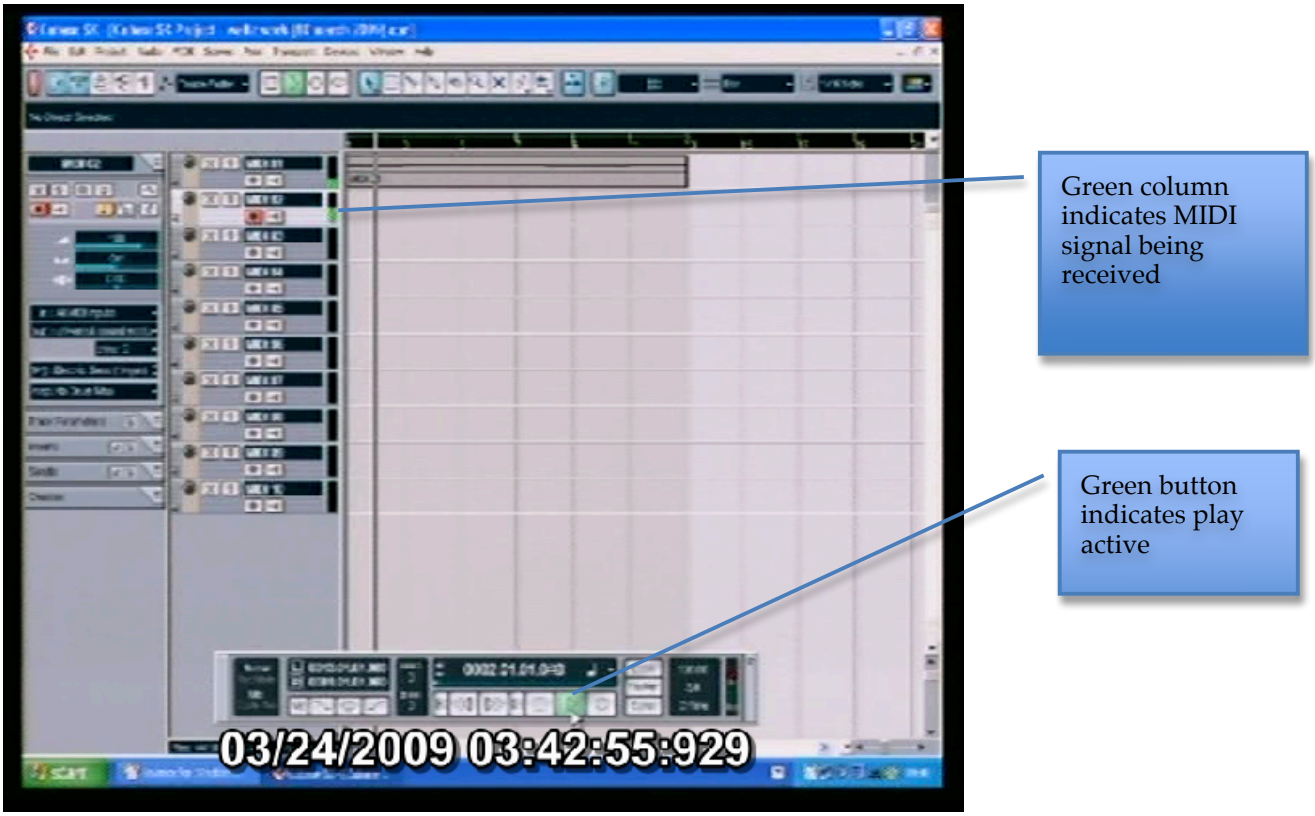

Figure 5.3: Finding on the MIDI keyboard.

A further example of exploring can be seen in my field notes, which describe Sam beginning the lesson[33] by twiddling around with a melody in the second classroom.

> Sam spent the first half of the lesson working on an idea using a guitar in room L18. He used the same idea in the second half of the lesson on the computer to try and find an introduction and ending in the second half of the lesson[34].

The video from the second half of the lesson[35] shows Sam adding to the introduction the same musical idea that he worked on during the first half of the lesson. This is an example of Sam exploring by finding an idea in L18 (the second music room) which he would put onto the computer in the second half of the lesson[36].

During one VSR session Sam appears to link this exploring to improvising with his father at home:

> S: And then I did, er..I think on that one a little bit of just, erm, improvising, what I do at home with my dad.

Furthermore, as in the second example, the majority of Sam's exploring takes place in an environment where he can play along with existing music in his composition 'on the MIDI

[33] SCV2.3
[34] FN2.3
[35] SCV2.3 04h40m40s ref1.
[36] SVSR2.3

keyboard'. Thus exploring is a strategy that is closely related to his experience of music making outside school. Twiddling around in school to find a new idea for his pieces is something that he recognises as a familiar activity early in the composing process.

Time away: blanking out

Time away is defined as a decision to spend lesson time away from the composition. For example, the video of Sam's screen towards the end of the second critical incident shows that he was not engaging with his composition on the computer[37]. At the same point on the classroom camera [38] it is clear that Sam has moved away from his computer and is engaging in conversation. He describes this in the subsequent VSR:

S:	There was a discussion about drums so I just kind of blanked out at that part; going on about drums. Yeah, I think we were talking about why people do Guildhall and why people do rock school. My dad does rock school and Chris used to do Guildhall and the difference between two is the Guildhall you'r constantly pushed to do grades, it's all rudiments and da da ...this thing (motions with hands). With the rock school one it's a lot easier, you can chill and play your own thing.
P:	Ah now this is interesting!
S:	I forgot about this. I went on to the stave know what it looks like, to hear it through, make sure I can read it.

This extract appears as significant to me because of the way in which time away from the composing process appears to lead to a reframing of the task in hand and an exploration of a new way of interacting with the music. The new method of interacting through the score, which Sam is describing at this point, has profound consequences as it leads to a discussion which draws the teachers' attention and ultimately results in a reframing of the composing task for the whole class. This is discussed further in Section 5.2.2.

Recording: twiddling into the computer

A recording strategy is a decision to record new material and in Sam's case takes the form of recording and creating new material by 'twiddling around' *and* using the mouse to create new material on the computer. For example, Sam recorded by improvising an idea into the computer using the MIDI keyboard[39]. Figure 5.4 shows MIDI activity on Track 2 and the record button as active.

Together with Sam's exploring strategy, 'recording by improvising onto the computer' is a strategy closely related to Sam's previous experiences of music making outside school. However, Sam also records by drawing notes onto the computer using the mouse and edit screen. The screenshot in Figure 5.5 depicts the draw tool and the note which Sam is

[37] SCV2.3 04h23m47s ref 15-16
[38] SVM2.3 03h15m26s ref 9
[39] SCV2.2 03h52m52s ref 25.

drawing. This is, for Sam, a new way of working that occurs through his explorations within the edit screen. This is discussed further in Section 5.3.1. Sam's recording strategies are indicative of his tendency towards improvisational and exploratory approaches to composing.

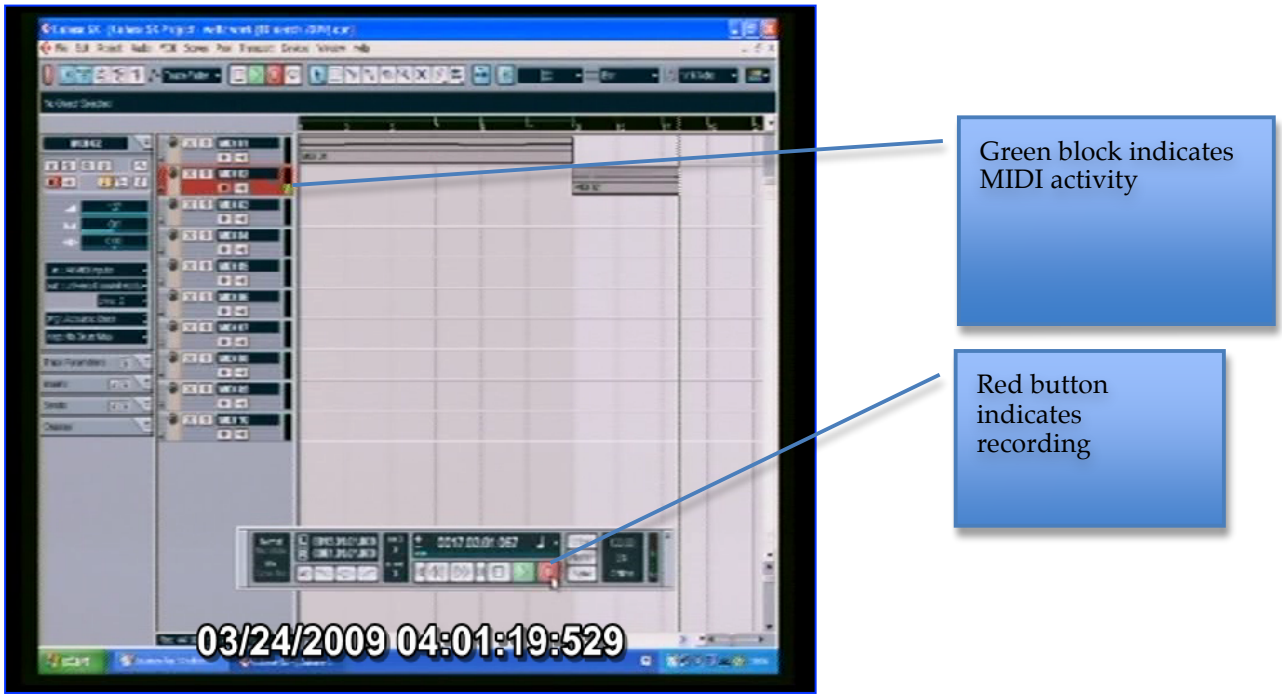

Figure 5.4: Screenshot of Sam adding by recording.[40]

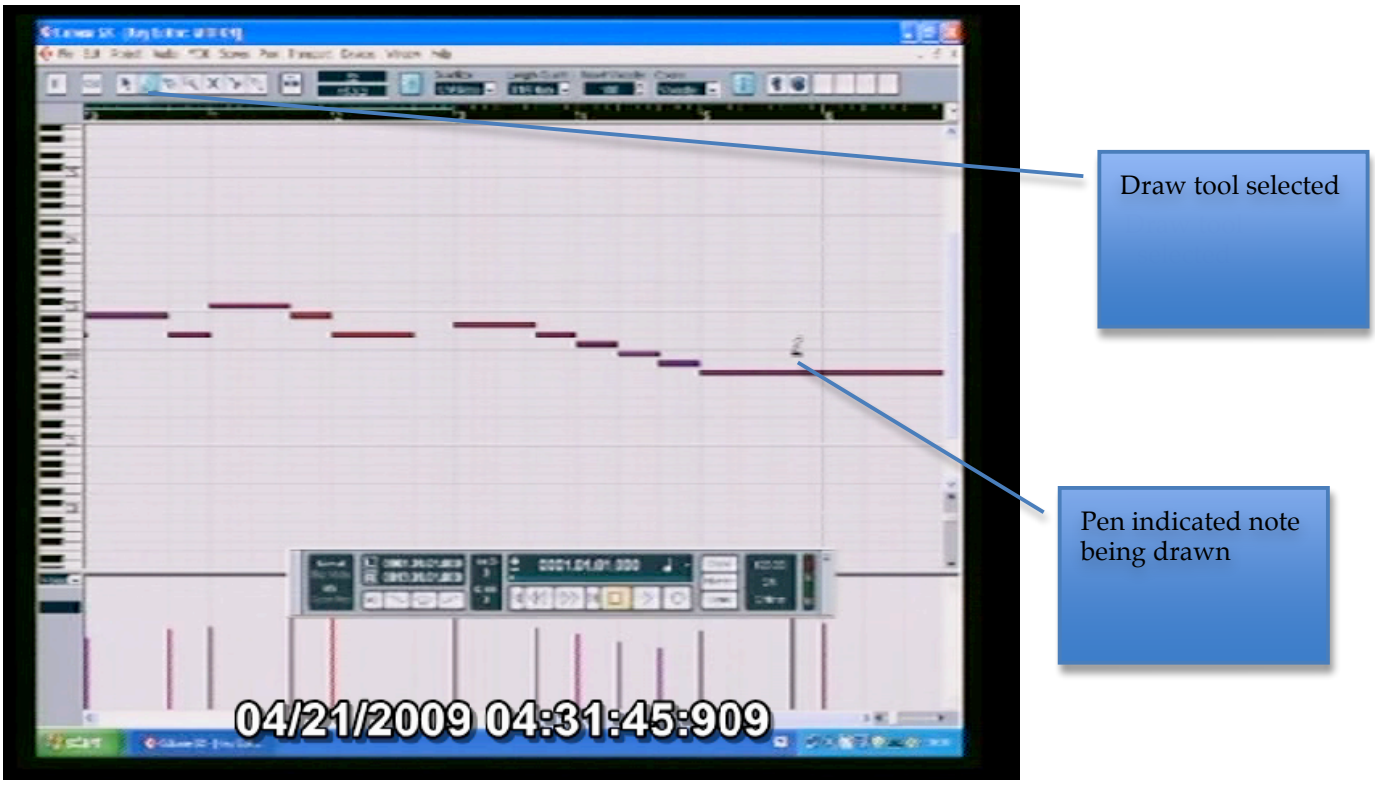

Figure 5.5: Screenshot of Sam adding by drawing with the mouse and edit screen[41].

[40] SCV2.2 03h52m52s ref 25.
[41] SCV2.3 04h23m47s ref11

Crafting: making it flow

I have defined crafting as a decision to change existing material into something more successful. This is the strategy most frequently evident through observation of Sam's composing process. Sam calls this 'making it flow'[42], emphasising once again the importance of achieving 'feel' rather than just sounding the notes.

The most frequent type of crafting for Sam is crafting by editing. For example, Sam is observed[43] selecting each note on Track 2 and manually editing the length of each note in turn by clicking and dragging the mouse. This occurs in the *Cubase* 'edit screen' and a screenshot of this process can be seen in Figure 5.6. A second example of crafting by editing can be seen when Sam plays back his piece and then switches from Track 3 to Track 2[44]. He follows this by changing the timbre of Track 3 using the computer mouse to click through the different patch names on the right-hand side of the *Cubase* 'arrange screen'[45]. The subsequent playing of Track 3 confirms that the timbre was changed. A screenshot of the patch change can be seen in Figure 5.7. This is a notable strategy, both because of the frequency with which Sam uses it and also because it appears at first to be contrary to what one might expect from an improvisational composer. Crafting by editing *existing* material in this way does not naturally form part of the process one might expect from an improviser.

It is true that Sam also demonstrates crafting by deleting or removing ideas from the piece. For example, in his search for a melody during his first critical incident, Sam removes a phrase from Track 2 of his recorded composition[46]. This is a crafting strategy as it forms part of a larger process of constructing a successful melody, and at this point he decides that it will be easier to re-record the whole phrase than to edit individual notes manually[47]. He also crafts by using existing material in a new place. For example, in the third critical incident Sam is working to craft a modulation from his existing material. He copies the notes of a chord and repeats this same chord four times in order to craft a new two-bar section[48]. This old section is shown in Figure 5.8 and the new repeated chords are shown in screenshot Figure 5.9. The menu visible in Figure 5.9 shows that the new chords are being pasted in. However, these deleting and repeating crafting strategies are far less common in Sam's composing process than his use of editing. The significance of Sam's approach to crafting by editing lies in the way he restructures the waltz-composing task, which is

[42] SVSR 2.4
[43] SCV2.2 03h37m39s ref51
[44] SCV2.3 04h23m47s ref8.
[45] SCV2.3 04h23m47s ref9.
[46] SCV2.2 03h52m52s ref 23
[47] SVSR 2.2
[48] SCV2.4 03h45m23s ref 9

heavily structured by the class teacher, into an exploration of many possible ways of shaping his musical material: score, arrange, edit, keyboard, mouse, pan. This notable transformation merits more detailed consideration and will therefore be discussed further in Section 5.3.

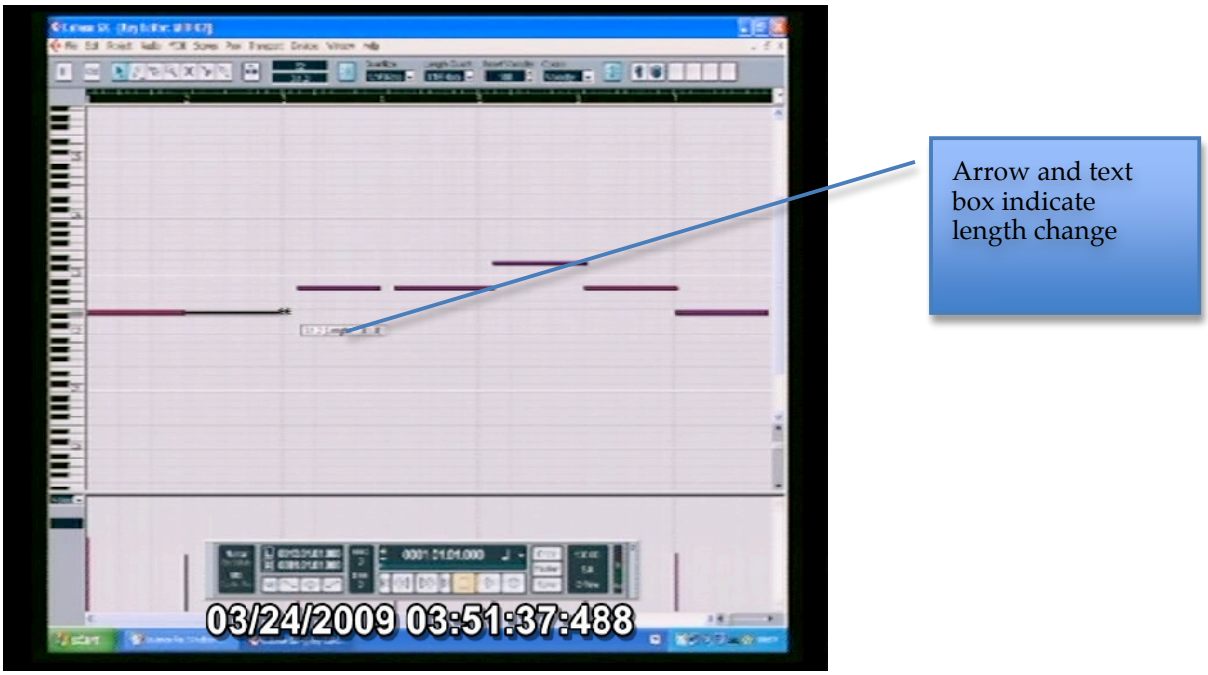

Figure 5.6: Crafting[49].

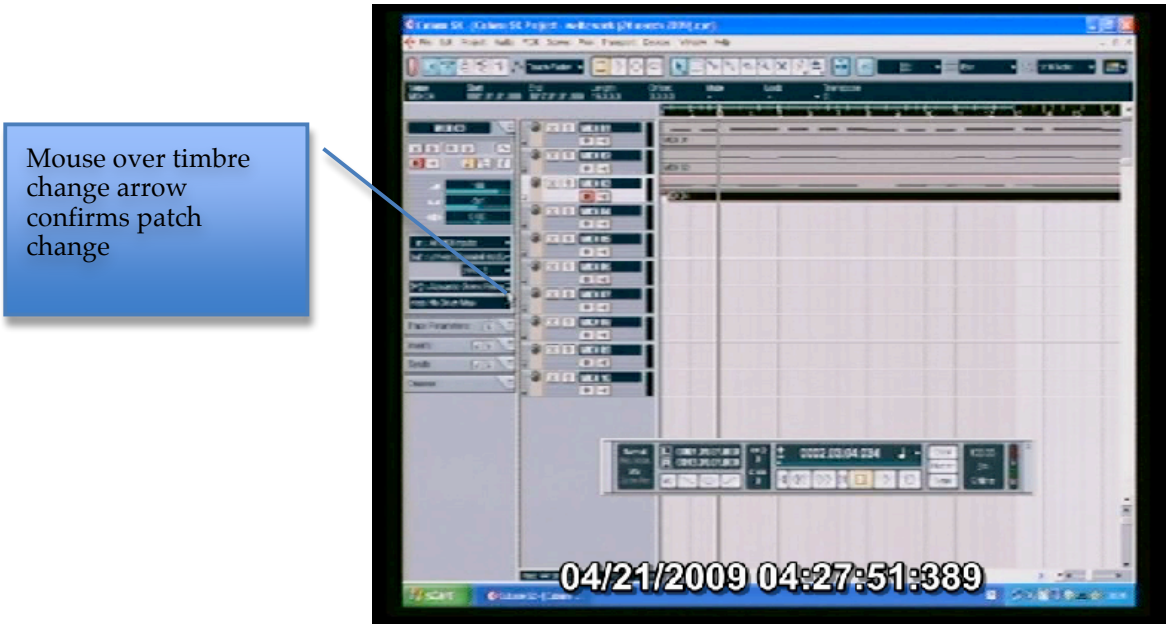

Figure 5.7: Timbre change[50].

[49] SCV2.2 03h37m39s ref51
[50] SCV2.3 04h23m47s ref8

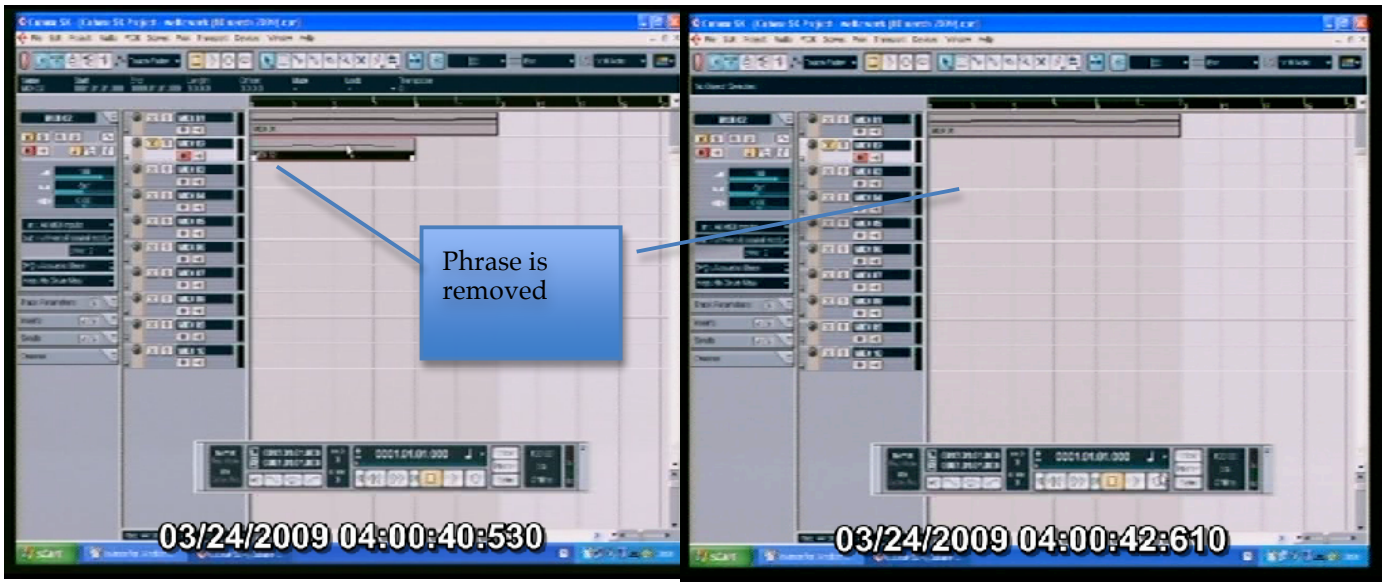

Figure 5.8: Crafting by deleting[51].

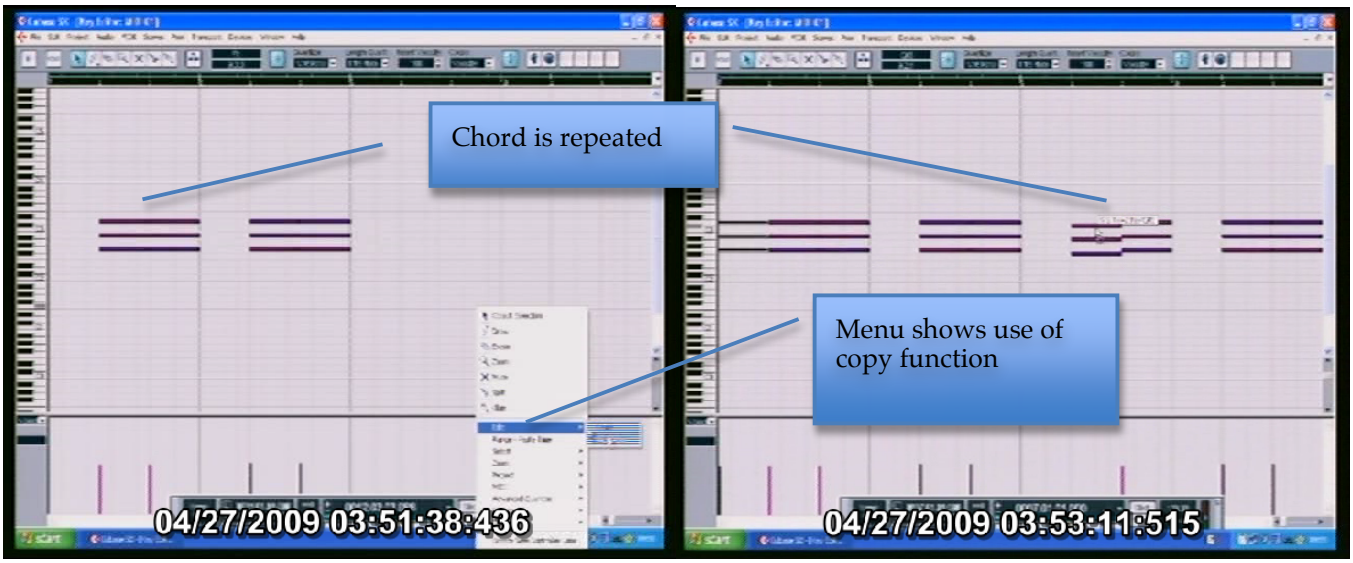

Figure 5.9: Crafting by repeating[52].

[51] SCV2.2 034h00m40s
[52] SCV2.4 03h51m38s

Judging

Sam's final inductive strategy group is judging. Sam judges by evaluating the success of an idea and also by comparing two ideas against each other. The word 'judging' was chosen to describe these two decisions as Sam himself articulated judging as a strategy during the VSR from the second critical incident.

> Yeah! A little bit bizarre. That was trying to find out where it was, Oh no! That was judging it[53]

Sam is observed judging[54] when he enters the *Cubase* 'arrange screen' and repositions the musical idea in Track 2 so it now appears at the start of the piece. He then mutes Track 2 and plays Track 1. Following this he plays both tracks together, plays Track 2 with the click and then proceeds to the edit screen to click on individual notes to sound them back. This is an example of judging by evaluating the success of an idea and can be seen at Figure 5.10. Sam evaluates the success of Tracks 1 and 2 both individually and together.

Judging also occurs when he makes changes to the structure of the piece in order to add a two-bar introduction[55]. Following this work he opens the arrange screen, takes the mute off Track 1 to hear all three tracks at the same time and then plays the section he has just worked on twice. He then goes on to delete some of the changes he has just made. This is an example of evaluating the success of his work on Tracks 2 and 3 and deciding that only some of this work has been successful. A screenshot of the playback is shown in Figure 5.11.

Sam compares by judging when, during the first critical incident, he changes the timbres with which his music is played. Sam changes the timbre of Track 2 by playing the piece repeatedly and changing the timbre with the mouse and timbre menu[56]. This is illustrated in Figure 5.12. This is an example of Sam comparing different bass sounds to choose the one which best suits his needs.

[53] SVSR 2.3 ref 88
[54] SCV2.2 04h08m26s ref5
[55] SCV2.4 03h45m23s ref 6
[56] SCV2.2 04h08m26s ref 6

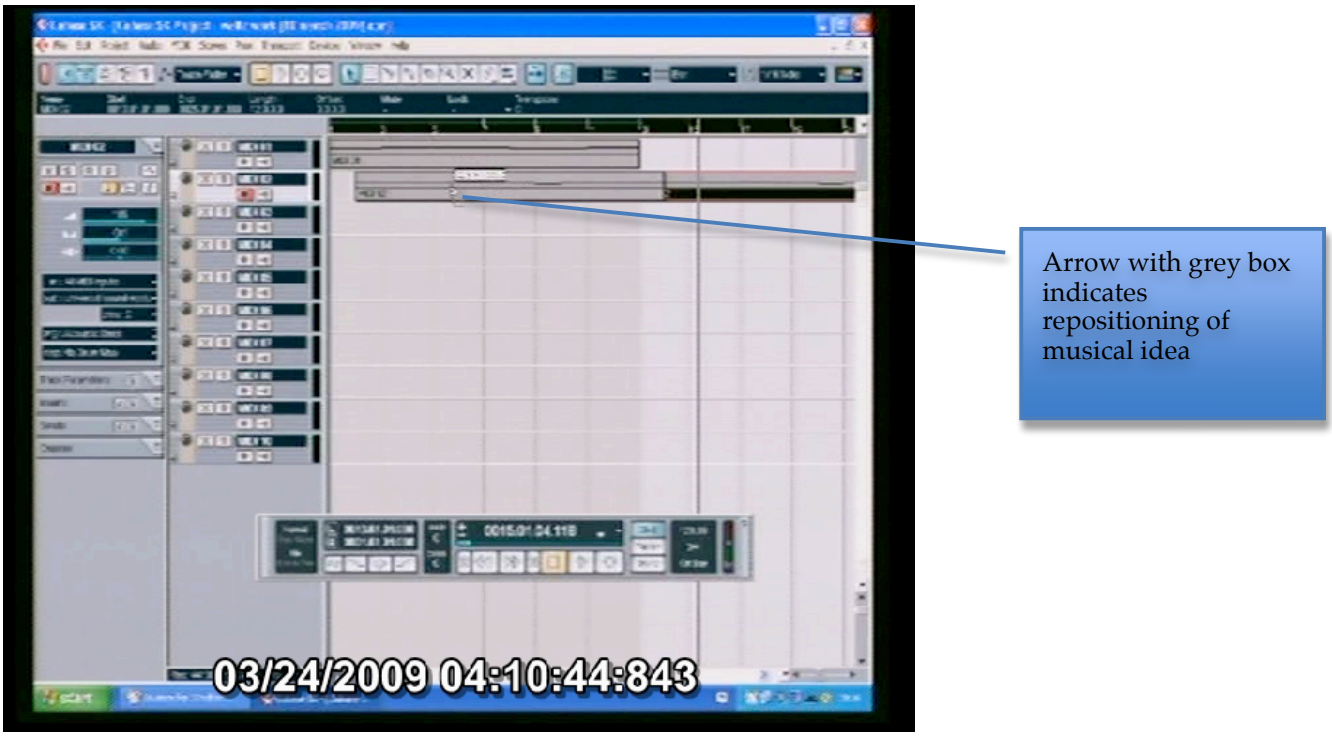

Figure 5.10: Judging[57].

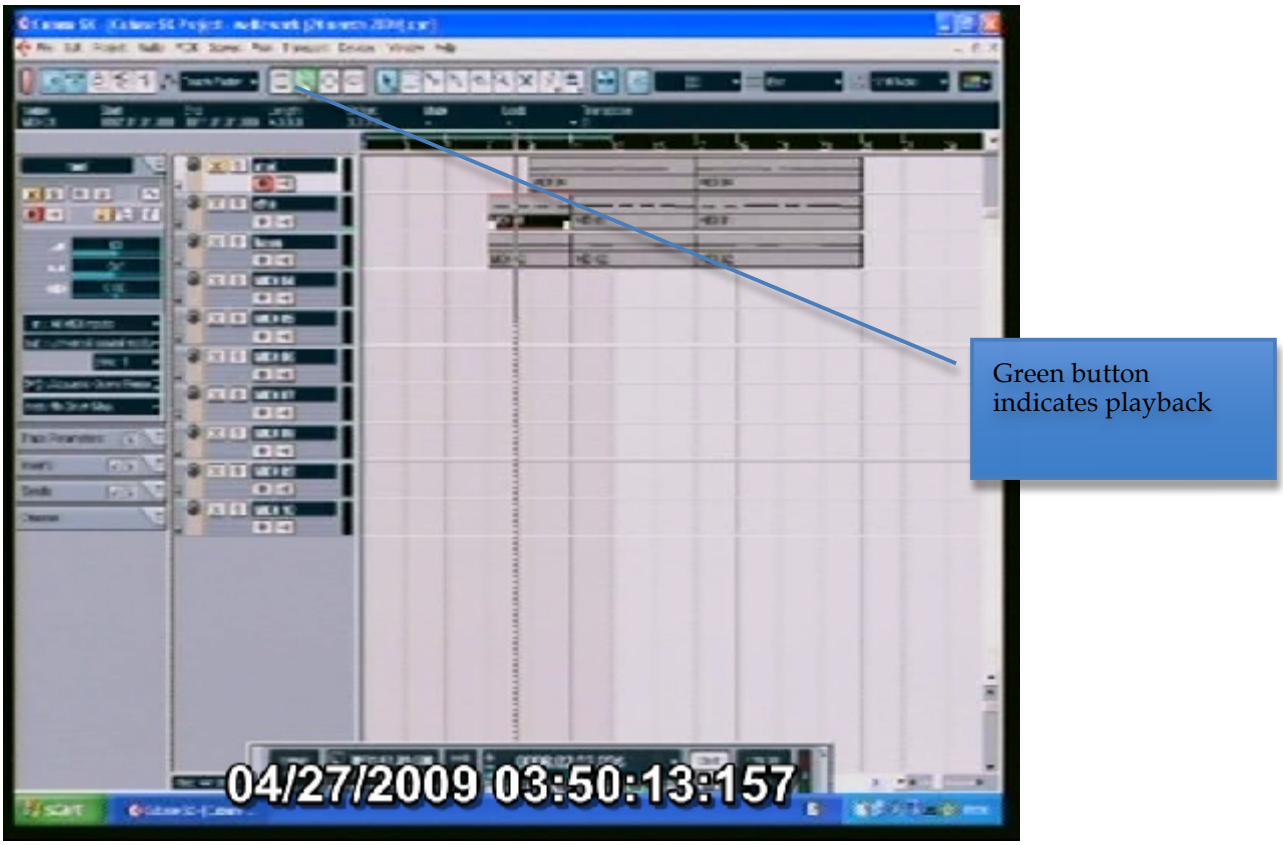

Figure 5.11: Judging by evaluating[58].

[57] SCV2.2 04h08m26s ref5
[58] SCV2.3 03h50m13s

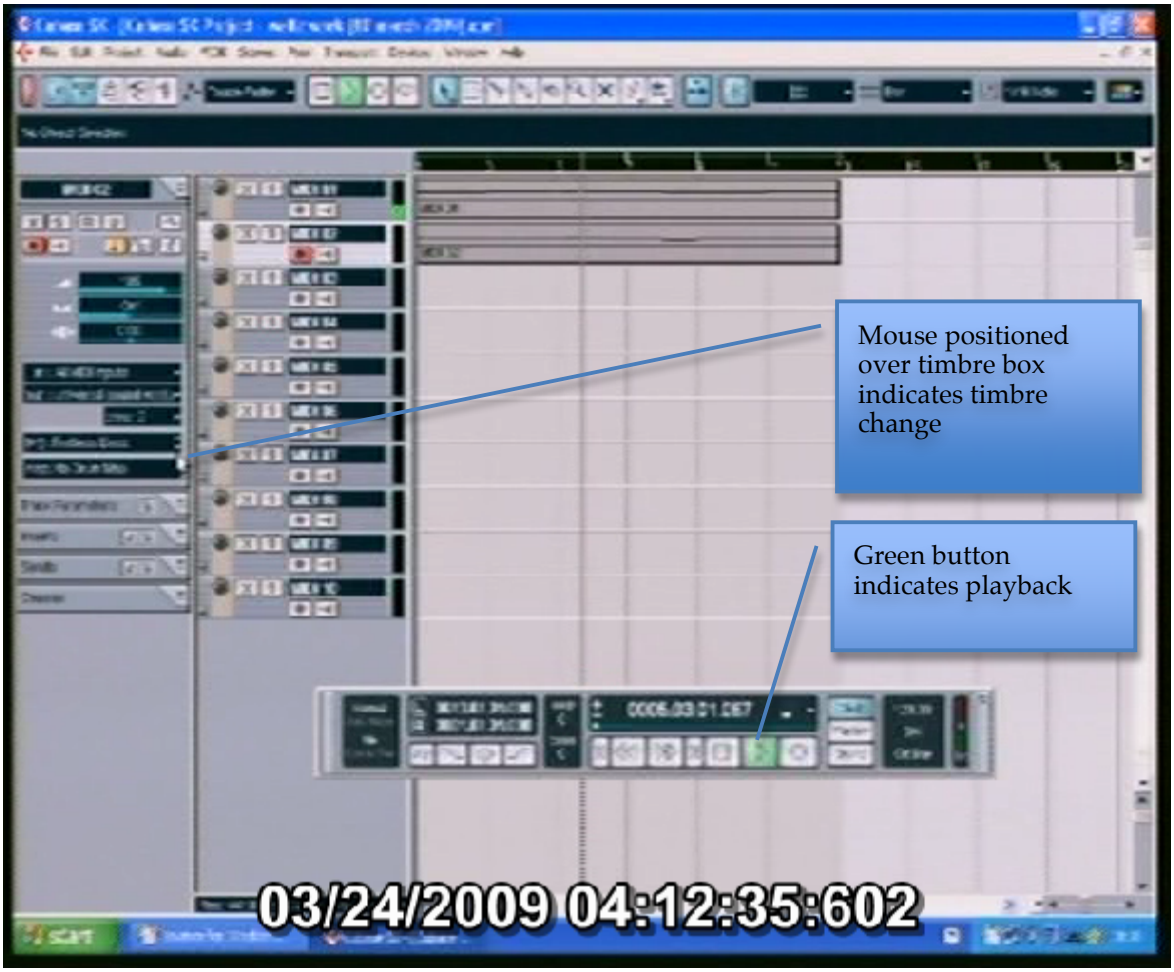

Figure 5.12: Judging by comparing.[59]

Judging is a strategy with which Sam is familiar as indicated by his description of how both his saxophone and drum lessons are conducted (5.1.1). Both types of lesson involve a degree of reflection on his improvisations: 'trading fours' on the drums and playing 'huge sections of improvisations' on the saxophone. The frequency with which he makes judgements about his ongoing work is indicative of his desire to ensure that his explorations are successful and expressive.

Summary

Thus Sam's composing process can be considered in terms of five strategies, namely exploring, time away, recording, crafting and judging. His exploring and judging strategies in particular have much in common with his previous experiences of music making. The strategy of recording can be likened to his improvisational approach as both involve real-time music making, although recording ideas by drawing using the computer is an example of a new way of working that is discussed below. His time away is significant in the way is allows him to reframe the task at hand, whilst the transformation of Sam's crafting strategy reveals an investigation of new ways of shaping musical material, which

[59] SCV2.2 04h12m35s

matches his exploratory approach and is explored further below. In this way, the nature of Sam's strategies reveals a consistent exploratory and expressive approach to composing, which gives rise to new ways of working within what he perceives as a restricted and formal music-making tradition.

5.2.2. **Sam's Composing Community And Environments**

As well as the nature of Sam's composing strategies, analysis revealed significant patterns in the nature of the composing environments with which he works. Fourteen different kinds of interaction with these environments emerged, which were reduced to four phenomenological groups: collaborative, physical, computer-mediated and conceptual. This process of reduction drew on the work of Dillon (2003), Gall and Breeze (2008) and Van Leeuwen (1999), previously discussed in Section 2.5. Dillon's work emphasises the importance of social interactions when working in computer-mediated environments, whereas Gall and Breeze highlight the importance of computer-based tools during the composing process. In contrast Van Leeuwen (1999) builds on the work of Murray Schafer to divide sound into three parts: foreground, midground and background. This relates to the terminology used in audio engineering regarding depth of field. In each case the suggestion is that attention is split between objects that are close to us or easy to hear, while others are more distant and may be more difficult to see. The current study takes this notion forward together with the work of Fölkestad and Nilsson (2005) who suggest four further objects that are evident in the foreground of students' composing processes: instruments, the music itself, personal fantasies and emotions, and the task. While the music itself and personal fantasies and emotions did not emerge as significant in the current study, instruments or physical tools and the task or conceptual tools were evident. It is possible that the two aspects which were not identified were not part of the composing process in either case. However, given the improvisational and hidden expressive approaches of the two students, it is more likely that the objects of the music itself and personal fantasies and emotions simply did not feature in the visible or articulated part of Sam's composing processes. Therefore as the focus is on significant contextual factors in the current study, we can surmise that the music itself and personal fantasies and emotions were objects that existed towards the background students' composing process, if at all. Thus emergent labels for cultural contexts are physical tools, computer-based tools and conceptual tools. while social contexts are a further group: social interactions. These are shown in Table 5.2. Each will be discussed in turn.

Deductive label type	Emergent group	Context code	Definition	Instances
Social contexts	Social interactions	Work with teacher	Interacting with musical ideas with a teacher	43
		Work with peers	Interacting with musical ideas with peers	9
		Work outside the classroom	Interacting with musical ideas outside the classroom	9
Cultural contexts	Physical tools	Bass	Interacting with musical ideas with a bass guitar	33
		Guitar	Interacting with musical ideas with a guitar	17
		MIDI keyboard	Interacting with musical ideas with a MIDI keyboard	105
		Mouse & computer	Interacting with musical ideas with a mouse and computer	190
		Paper & pen	Interacting with musical ideas with paper and a pen	19
	Computer-based tools	Edit screen	Interacting with musical ideas with the edit screen	127
		Arrange screen	Interacting with musical ideas with the arrange screen	71
		Score	Interacting with musical ideas with a score	8
		Listening	Interacting with musical ideas with the computer speakers	180
	Conceptual tools	Compositional devices	Interacting with musical ideas with compositional devices	86
		Compositional features	Interacting with musical ideas with compositional features	62

Table 5.2: Sam's composing contexts, their codes and their inductive and emergent groups.

The classroom community and social interactions

The first significant pattern in Sam's composing arises from his social interactions. Sam's most frequent social context is interaction with the class teacher. One significant example is when Sam collaborates both with the class teacher and with his classmates to consider the presentation and sound of their work. Comments seen as significant by the researcher are highlighted in bold text.

S: [this] might be the discussion about how the notes aren't working . There's the thing about the sheet music and how it would look... that's the sheet music to this bit. The actual bit does count.
P: Oh, that's why you then talked to Hayley did you say?
S: Yeh, Hayley.
P: What was that in response to? Did she talk to you or did you talk to her?
S: She talked to me [about] sheet music and the how it looks so scattered. I was just saying how mine's nice and tidy and pretty and then [was] making the point of **not everything's meant to be tidy and pretty as demonstrated by the composition.**

Following this excerpt, in which Sam is reflecting that just because the score is neat, it does not necessarily sound good. I understand the meaning of 'not everything's meant to be tidy

and pretty' as Sam expressing dissatisfaction that his may look good but does not sound as successful as he might like. While in this excerpt Sam is working with his classmates by responding to a question about his score layout, this leads to a group discussion which ultimately involves the class teacher.

S:	Mine looks normal. Man! Yours..a bit hectic mine just looks normal.
T:	Is everybody here OK?
S:	Compared to Michelle's it looks…
T:	Did I show you?
S:	Show me?
T:	Or did you edit it?
S:	I edited…what?
T:	It would be nice to have your… Which is your bassline?
S:	That one!
T:	That one. OK. Can I just suggest that we move your **bassline so that it is in the bass**? (using the mouse to move ideas on the screen)
T	Yeh.! And then you've got that there and then we can put it down into…and this is your **melody that's now in the middle** so we need to come down here. All right! The bass clef which would make it look…Yeah!
T	And you can see it a bit more logically. Right, OK, so you might now want to relabel that yes?
S	OK.

Sam's discussion with the teacher illustrates the way in which the teacher adjusts Sam's score to make it meet the conventions of score presentation: 'bassline in the bassline…melody in the middle'. This is a further example of the teacher's role as one of moving students towards a more formal way of working. Sam's simple response – OK – appears to be conforming to the teacher's instructions rather than agreeing willingly. Indeed, when viewed in the light of his statement 'not everything's meant to be tidy and pretty', it appears that the teacher's intervention at this point may even be contrary to Sam's wishes.

Mediated environments and cultural interactions

We noted earlier that I am using 'cultural' in this case to refer to tools or artefacts that mediate activity. In Section 2.3 we saw how cultural tools or artefacts can be material and ideal, that is, they can present opportunities for action through both physical and psychological means. The contrasting nature of these different opportunities is reflected in the division here between physical and conceptual interactions. This is not to say that physical tools do not also contain embodied knowledge, nor that conceptual tools are not also material when employed. Instead, this division seeks to highlight what is most readily presented to the composer when employing these tools. When using a physical tool, the composer is likely to be interacting with a material 'thing', such as a piano. In contrast the notion of a conceptual tool draws attention to the presence of an idea that is being used,

such as a musical cadence[60]. Alongside these, I have also included computer-based tools as a discrete type of interaction due to their ambiguous nature. The tools presented by computers occupy a space somewhere between the material and the ideal. In each case they are not something that can be 'touched' like a conceptual tool, for example, the arrange screens, yet they can only be interacted with by means of a second physical tool.

Conceptual tools

Referring back to the previous discussion in which Sam works with his classmates and teacher in a discussion about the layout of his score, the subsequent dialogue shows how this develops into a discussion of Sam's introduction and ending. This dialogue moves into a second social context: a discussion about introduction and endings at the whole-class level.

T	And then you could do if you really were, cause you're quite far advanced, I would say let's take this whole section and move it along and perhaps do an introduction.
S	**Yaa**...
T	And then have a coda at the end, which would be a little sort of rounding off so when you've got…let me play you something.
S	**Oh! Take these off my neck for a minute** (takes off headphones).
T	If you had a waltz that goes erm...(plays piano), so you do a little gentle beginning (123-123-123-123 -um pa pa - playing piano) and perhaps even get this going (plays tune and sings to demonstrate) this is my middle section. There now I'm repeating that sort of idea (playing MIDI keyboard) and there's my coda. Yeah.! A little strong ending. Perhaps not having the um cha cha, having the bigger chords, you know, so all those things are possible in your waltz.
S	**OK**
T	Yeh...so if you listen to.. .
S	**Could be here a long time**
T	So all the rest of that was introduction. Yes...so there's a thought.
T	Right people in here...if you just spare me one half of an ear just for a minute. OK! Because I've seen some people are getting quite far ahead with their waltzes, I suggest that it might be a really good things for you to do to take a leaf out of Mr Johann Strauss's book and have a little bit of an introduction in your waltz …

As well as indicating Sam's apathy towards the teacher's suggestions – 'could be here a long time' – this excerpt illustrates how the teacher's idea of employing the conceptual tool of an introduction grows from working on Sam's composition to suggesting it to the whole class. I take this therefore as an example of conceptual context, as the addition of an introduction and ending is the use of a musical feature[61]. It is notable that as well as combining contexts between types, Sam's strategies also blend contexts within context types.

[60] This is a standard convention in musical grammar that usually marks the middle or end of a musical phrase.
[61] SVM2.3 03h15m26s video 6 refs 26-76

Physical tools

Interactions with five physical tools were identified as significant in Sam's composing process: paper and pen, mouse and computer screen, MIDI keyboard, guitar and bass. Sam's most frequent context for interaction was with the 'mouse and computer screen'. For example, Sam uses the mouse and computer screen to craft his melody[62] by changing the length of an individual note. He does this by clicking on the end of the note and dragging the mouse sideways[63]. This is shown in Figure 5.13.

Sam also judges the success of his recently crafted melody by using the mouse and computer screen to judge. He positions the playback locator on the screen and then clicks on the play button on the *Cubase* transport bar. Using the mouse to select Tracks 2 and 3, he then enters the edit screen and operates the mouse to click on individual notes to hear them and judge their success[64]. This can be seen in Figure 5.14.

A further example of work with a physical tool was that of using the MIDI keyboards. For example, during the process of judging the success of his bassline, Sam uses the MIDI keyboard to check which notes are being displayed in the edit screen[65]. The screenshot in Figure 5.15 reveals the presence of MIDI activity. The explanation that this activity results from Sam playing the MIDI keyboard is confirmed by a screenshot of the mid-ground video at this time (Figure 5.16).

[62] SCV2.3 04h06m32s ref6
[63] SCV2.3 04h06m32s ref6-7
[64] SCV2.4 04h16m39s ref14
[65] SCV2.4 04h32m04s ref5

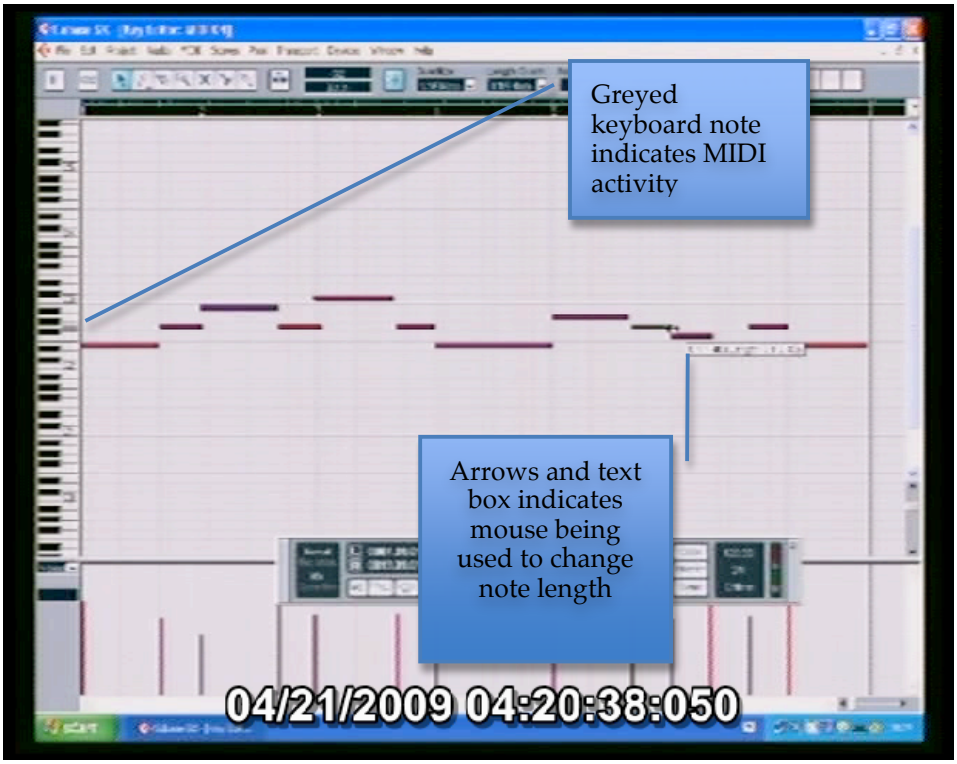

Figure 5.13: Screenshot of Sam crafting with the mouse and computer screen[66].

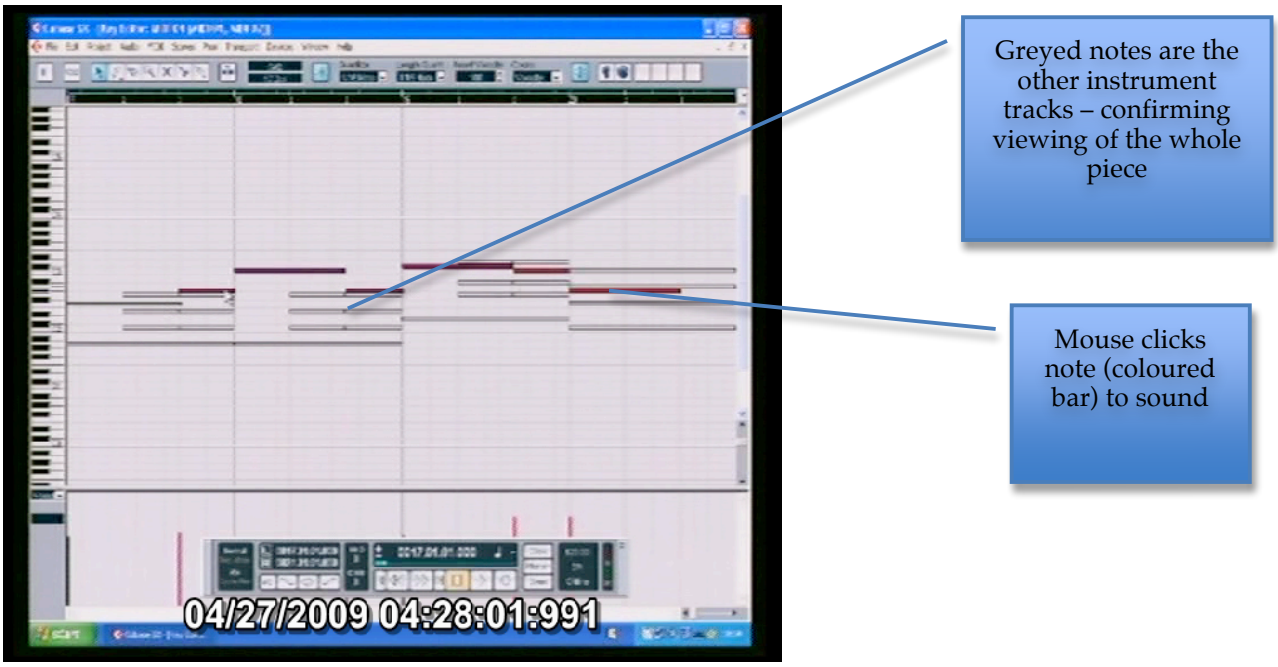

Figure 5.14: Screenshot of Sam judging with the mouse and computer screen[67].

[66] SCV2.3 04h06m32s ref 6
[67] SCV2.4 04h16m39s ref14

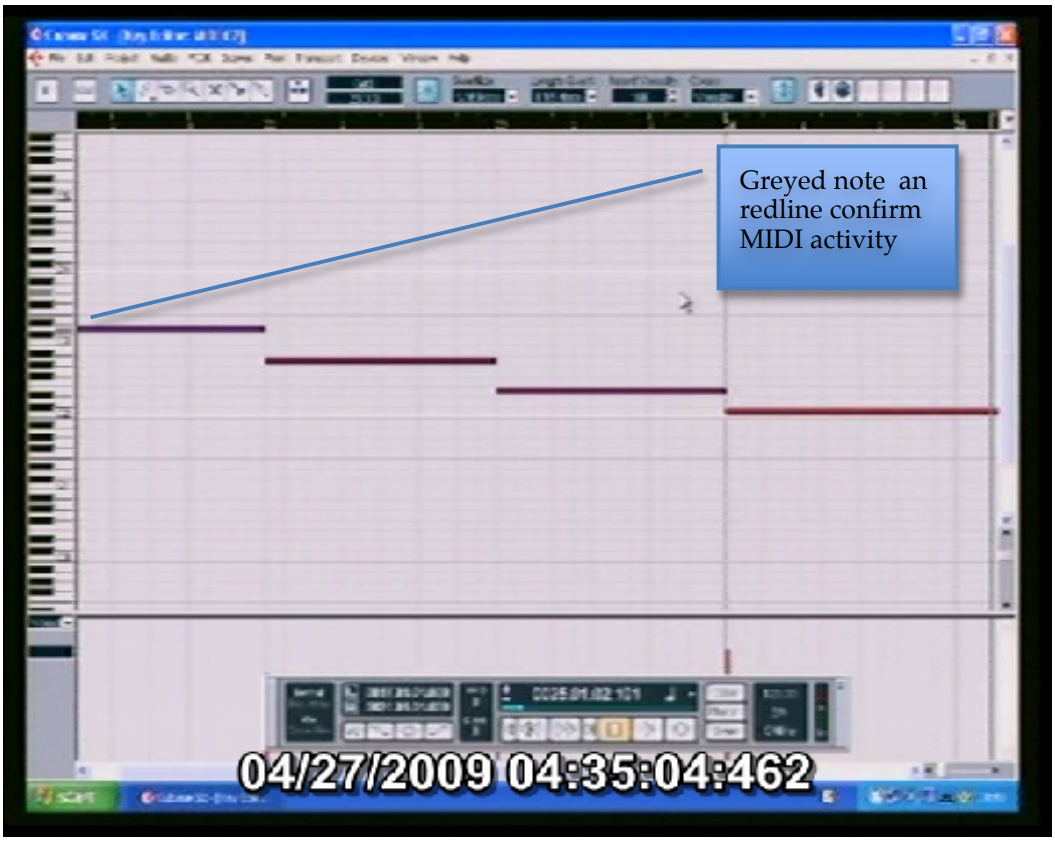

Figure 5.15: Screenshot of MIDI activity[68].

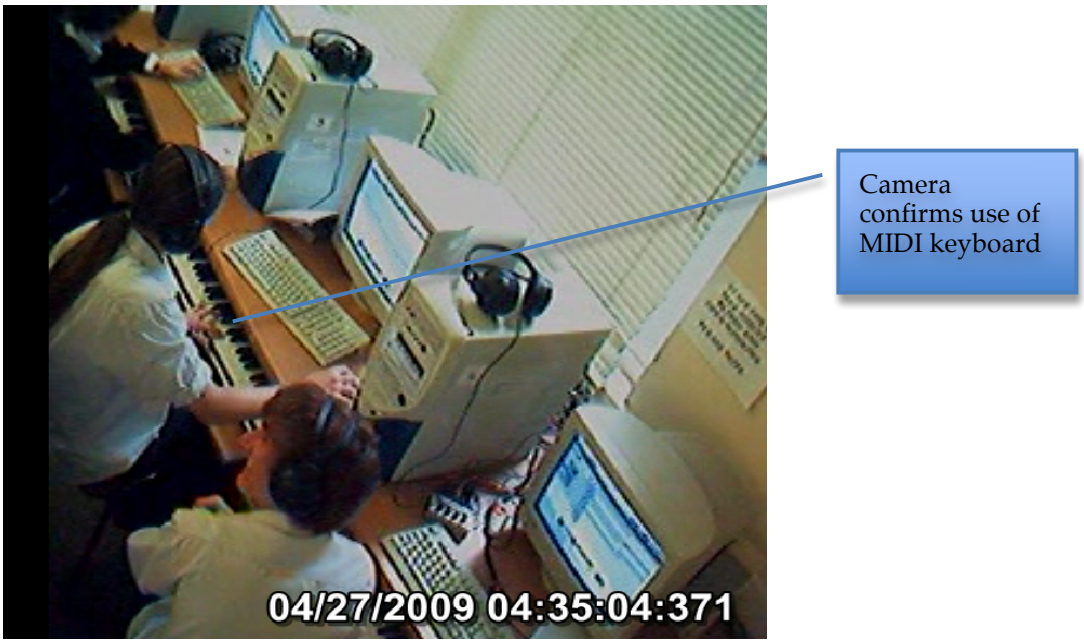

Figure 5.16: Screenshot of Sam playing MIDI keyboard[69].

[68] SCV2.4 04h32m04s ref5
[69] SVM2.4 04h32m04s

Computer-based tools

The previous example also highlights working in a computer-mediated context with computer-based tools. When students compose by interacting with musical ideas with an edit screen software view, this is regarded as employing the 'edit screen'. The *Cubase* edit screen in shown in Figure 5.17. The *Cubase* edit screen allows students to see the notes of selected tracks represented as rectangular blocks. The y axis (top to bottom) represents pitches from low at the bottom of the screen to high at the top: the higher on the screen the note is, then the higher its pitch will be. The x-axis represents the position in time of musical events: the longer the rectangle, the longer the note will be. Across the bottom of the screen are vertical bars that can represent aspects of the piece depending on the preference of the user. The default setting (pictured) is that of velocity[70]. The 'edit screen' is a computer-mediated context and was the second most frequent method of interaction (121 occasions) in Sam's' composing process identified through observation. In the previous example the edit screen enables the identification and playback of individual notes within the composition, which in turn enables a judging strategy to be employed. Thus it can be seen that contexts are also used in combination.

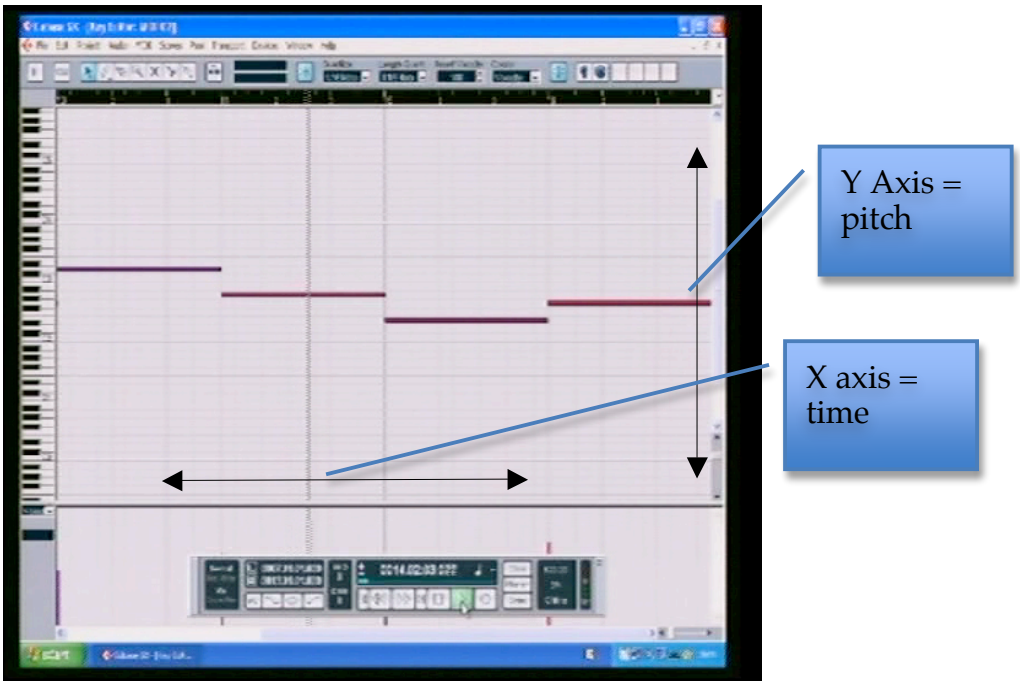

Figure 5.17: The *Cubase* edit screen.

[70] In MIDI terms, velocity is the setting that has a value derived from how fast the note is pressed and is usually used to control the volume of each note. Sometimes velocity is also used to control timbre changes.

Summary

Each of Sam's five qualitatively different composing strategies are used in distinctive ways in relation to the context in which they are used. His contexts can be assembled within four distinct groups: social, physical, conceptual and computer-mediated interactions. Each strategy is used within one or more types of interaction. Furthermore, interactions both within and between groups occur at the same time. The following sections will also go on to explore how and why these strategies are used and how, over the course of Sam's explorations they reveal developmental changes within his composing process.

5.3. SAM COMPOSING OVER TIME

In Section 5.1 I suggested that despite Sam's best efforts, it appears that his views of composing as collaborative exploration and expression seem incompatible with what he perceives as the restricted and formal world of school music. Yet I suggested earlier that the intentions of the department appear to be explicitly in support of forging links between music in school and the wider community. They aim also to encourage responses toward music from a variety of musical backgrounds and experiences. In this section we will now examine a tension highlighted by Sam's experiences of music in school and the department's aims.

5.3.1. **Sam, Composing And The Task: A Quest For Adventure.**

Crucially, I will present the case that the pursuit of ways to navigate this tension helps to bring about two developmental shifts in Sam's composing process over the course of the study. Firstly, there is a shift from closed tasks based on physical skill and teacher support through paper-based exercises to open tasks that allow him to use both physical and conceptual tools in computer-mediated environments. Secondly, there is a shift from a focus on the product to balance between exploratory processes that facilitate the production of an outcome. In each case Sam's development is underpinned by his tendency towards improvisation and exploration, which we have seen is indicative of his pursuit of expression and 'soul' in music making (5.1).

Navigating musical devices and features

Firstly, Sam's composing process appears to demonstrate a significant decline in the variety, and later in the frequency, of explicit use of musical features and devices. I previously noted that the teacher worksheets are intended to support students in their use of waltz features and theory. The range and distribution of Sam's early references to specific musical devices and features, such as ¾ time, texture, sequence and harmony, suggest that the teacher worksheets are successful in supporting his awareness of them. For example, he talks about his use of root position chords for the accompaniment during an early interview:

> And that was trying to find out if that note, it's a case of (de de de), no...de de no so instead of fifths, fifths? I think it's fifths., I'm pretty sure it's fifths, going from fifth to seventh, or fourth to seventh or whatever. Yeah! You had back to the root and it just sounded nicer [71]

[71] SVSR2.2

Later he talks about crafting the structure of the piece:

S: We have the first bit A which is 8 bars - all to itself (normal) then we have 4 bars of section A again ..er section B, then followed by four bars of section A so that's
P: Yes first four bars of section A...and from there I'm going to expand section B and a little bit and then have on the end of section A an ending - a coda
S: First - I think
P: OK I see right
S: Yes first four bars of section A...and from there I'm going to expand section B and a little bit and then have on the end of section A an ending - a coda

While these are two examples of Sam's articulation of devices and features, Figure 5.18 shows the number of explicit mentions of devices or features of his work during the critical incident lessons. It can be seen from the columns that the range decreases steadily over time while the frequency of references initially increases but then declines to zero.

Yet there is a marked increase in his intentional use of devices and features. Figure 5.19 shows the number of observed uses of musical devices and features alongside composing strategies for each critical incident. An example of one such incident is when changing the ending during Lesson 2.4, Sam does not make reference to any use of musical devices:

S: Yeah, by the looks of it. Yeah, and listening through to hear it. Yeah! That's it just there cutting it with the cutting thing. And then listening through it to hear if the 'de dem' works better than just playing 'den'. Which I don't think it did, cause I'm pretty sure I put it back to normal afterwards.

However, from observation and analysis of the computer screen activity it appears that Sam is working on introducing a modulation[72] . Thus, while the numbers are small, there is nevertheless a rise over time in Sam's strategic use of devices and features.

[72] SCV2.4 04h16m39s ref 12

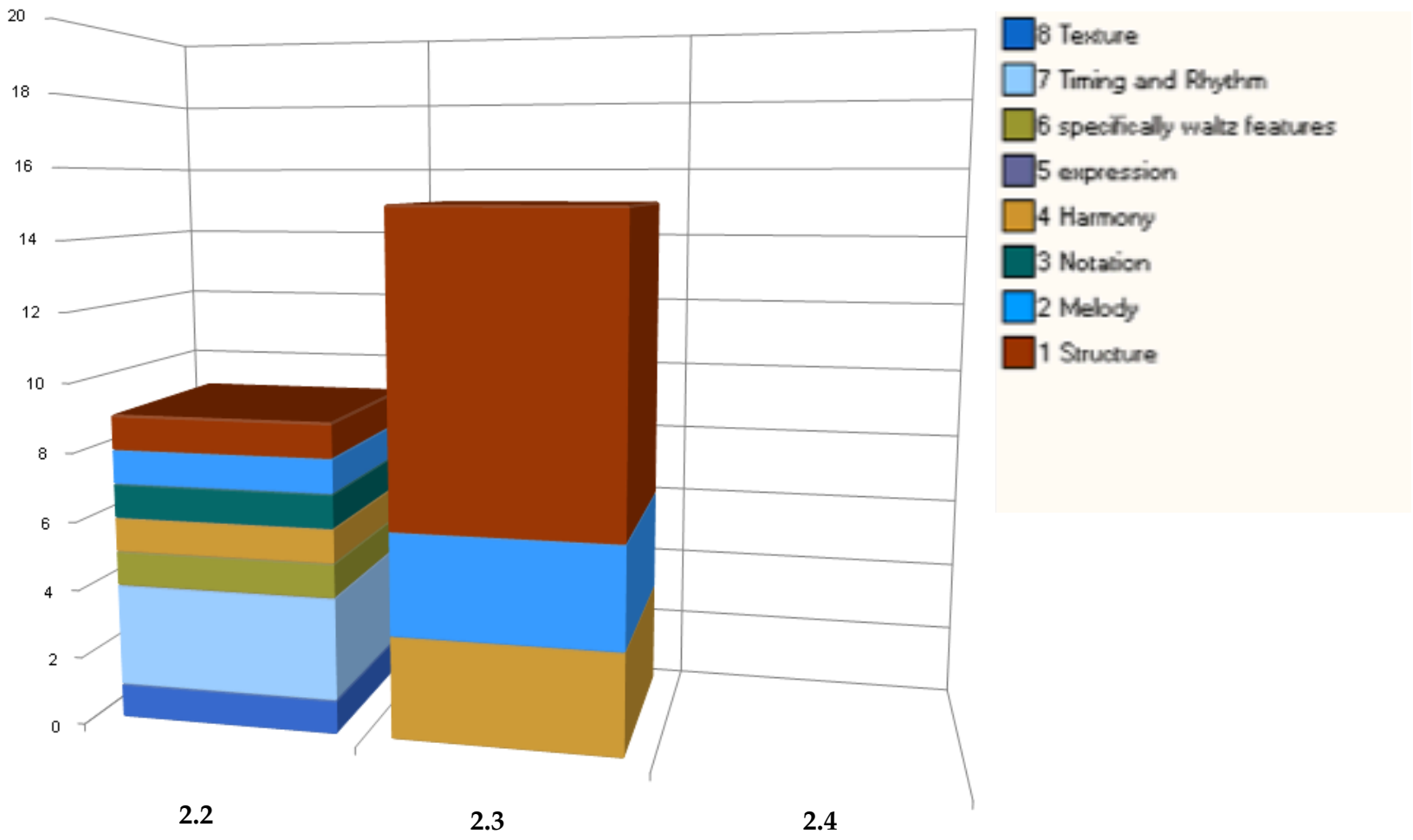

Figure 5.18: Devices and features for critical incidents and for verbal data sources.

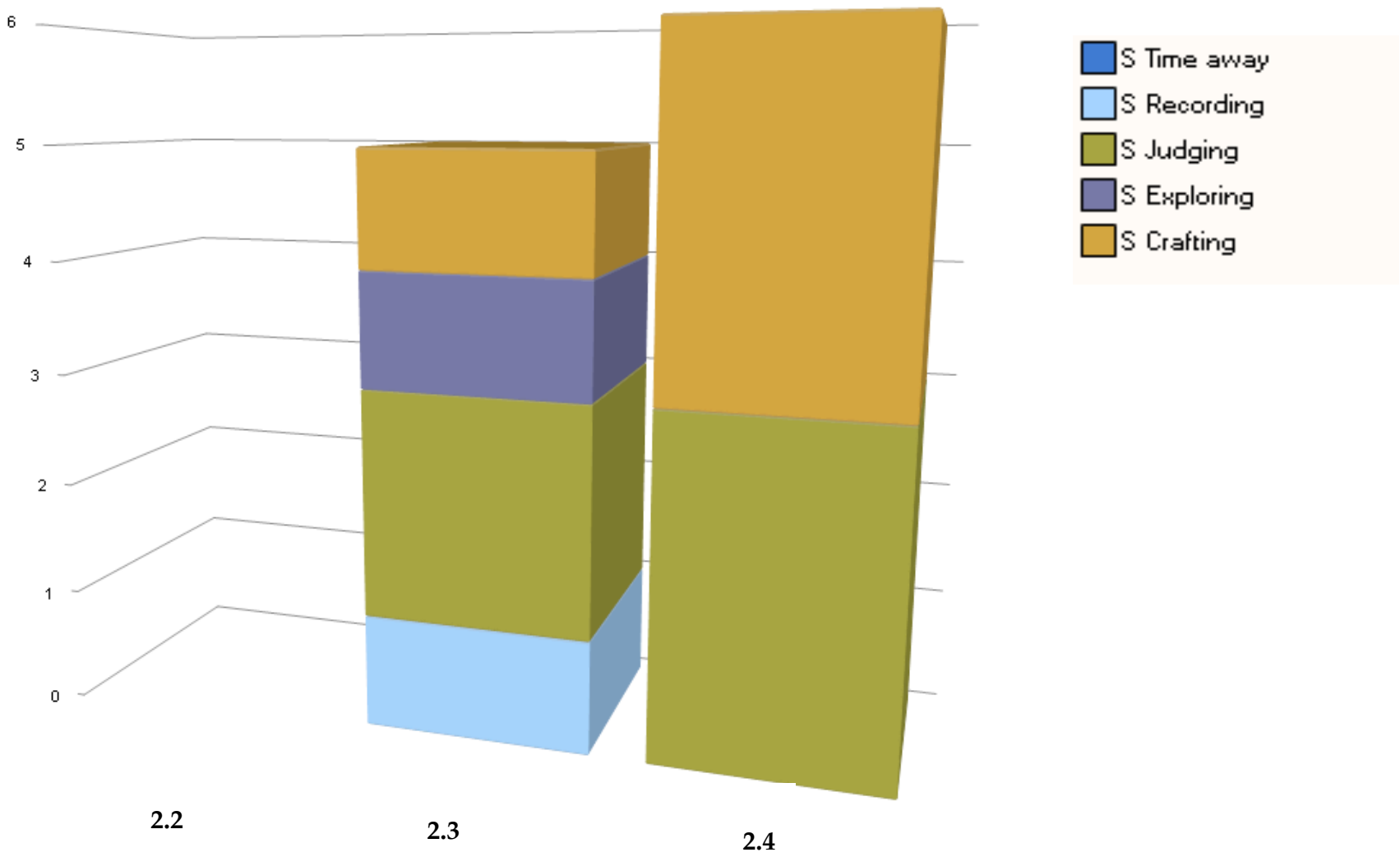

Figure 5.19: Sam's strategy use mapped against uses of devices and features for each critical incident.

Thus alongside the move onto the computer is a marked shift in Sam's explicit use of devices and features. However, his intentional use of music devices and features increases for every strategy, apart from time away initially and, ultimately more significantly, crafting and judging. This suggests that the teacher worksheets serve to support Sam's explicit use of music features and devices but not his intentional use of them as part of his composing process. In fact it could be argued that the guidance provided through the worksheets become 'rules' that constrain Sam's' composing process.

Towards musical improvising: judging and crafting

A second change that is evident in relation to the teacher's interactions with Sam is that the move away from worksheet-based composing is matched with a parallel shift towards greater improvising, judging and crafting.

Figure 5.18 shows instances of improvising with the MIDI keyboard and judging across Sam's critical instances. It can be seen that Sam's use of the MIDI keyboard increases overall and his use of a judging strategy increases steadily. This is indicative of the shift towards a more improvisational approach to working. Also shown in Figure 5.20 is a similar increase in Sam's use of crafting. This is underlined by a clear move towards using the computer as a visual and aural way of engaging with his composition. This 'crafting with the computer' is the second of two approaches that emerge during the project, the first being structured preparation through the use of worksheets.

It has previously been noted that improvisation forms an important part of Sam's approach to composing. Judging and crafting were discussed in Section 5.2 as key aspects of Sam's composing process. Yet it is notable that this increase in judging occurs alongside a trend in Sam's interviews towards talking less about judging and more about crafting and working towards expression. For example, in the interview following Lesson 2.6 Sam talks about how he is trying to get the music to 'flow like a river':

S:	Yep, that's the introduction and cause I heard a note overlapping, which is demonstrated there [I'm] pretty sure I cut that bit out! Oh, I made that longer. Not sure, I think I cut it out...pretty sure. That bit I know I made longer and then that bit shorter so it sounded flowing.
P:	Why did you do that?
S:	It wasn't flowing. It just didn't seem to flow with the rest of the music. For instance, if there's a big rock in the way of a river … It kind of just goes around.

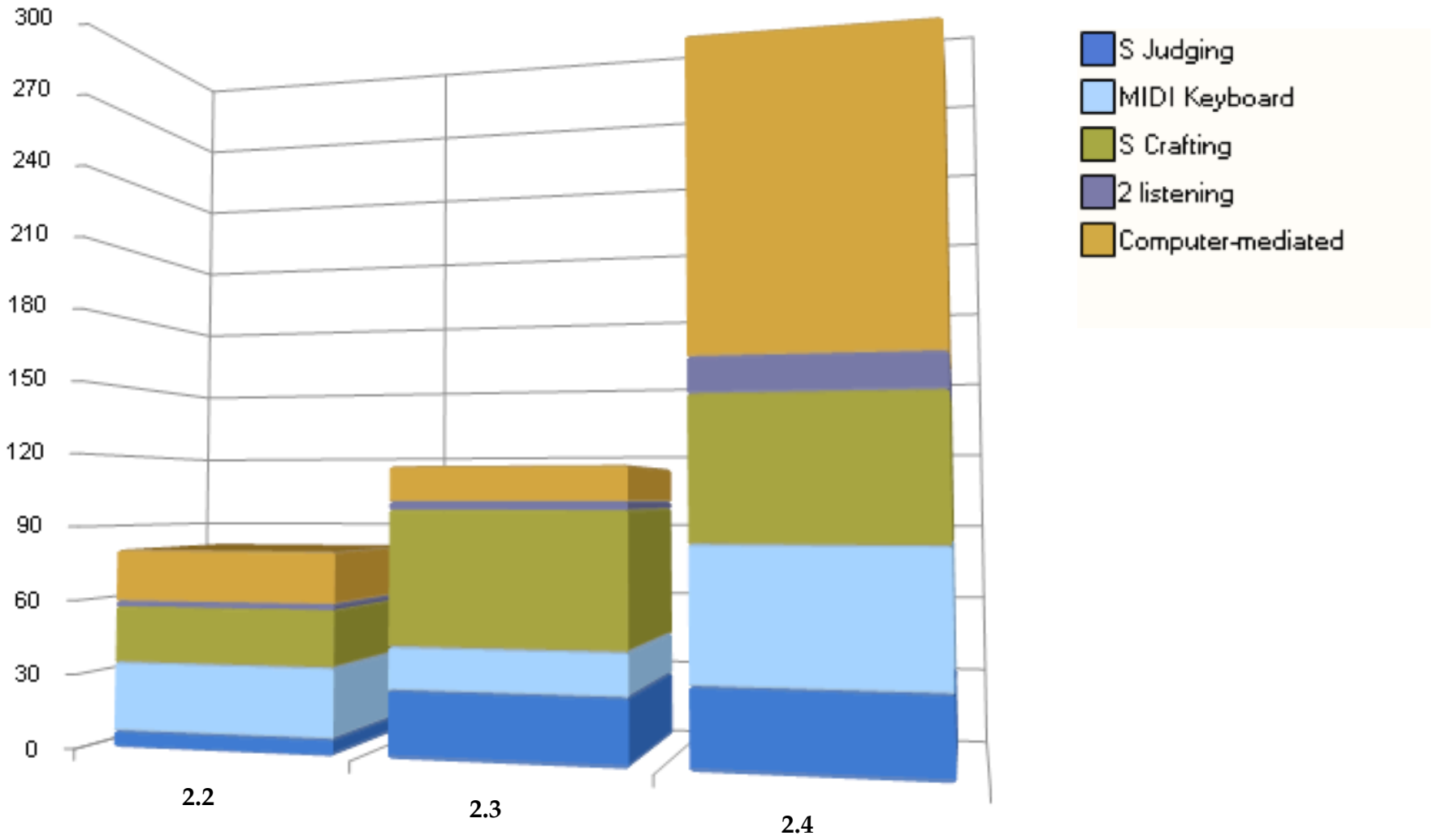

Figure 5.20: Sam's judging and crafting strategy use by date with MIDI keyboard use, listening and computer-mediated interactions.

Together with the reduction in teacher intervention noted above, this decrease in Sam's comments on judging suggests that the increase in his use of this strategy may be related to the computer-based nature of his later work. Indeed, Sam's use of judging increases alongside his use of strategies associated with computer-based interactions and yet he rarely articulates judging in these contexts. Of course it is also possible that the reduction in Sam's discussions of judging grows out of his emerging and underlying pursuit of expression. He appears to be more interested in talking about his intentions rather than how he is working. Nevertheless, the qualitative shift towards improvising, judging and crafting is compelling, as, it seems, is his intention to make the music 'flow'.

It appears that Sam's development of ways of working that tend towards improvising, judging and crafting are indicative of a cycle of recording, judging and crafting that begins to characterise Sam's work with the computer. Initially this recording takes place as Sam uses his ideas from the teacher worksheet and transfers these onto the computer. For example, Sam describes how in Lesson 2.2 he is recording the ideas 'that he already had' on the worksheet. Once recorded, he realises that it does not fit (judging) and so changes the sounds (crafting) in order to get the idea to fit with the piece.

S:	Yeah, there. That's where it went wrong. It went de de de, which it's not meant to do. It's just meant to flow normally. So I got that flowing normally, then straightened everything out made it all look pretty. Oh, yeah! After this, when I've straightened everything out, I play the top two without the bass, the third one is the bass, Tracks one and two I think. It's, no, no, yeah, no! Wait! Tracks one and three; because two is the bass line. Yeah! Yeah, I messed things up and played the bass with the piano. So what I did, I played it on the piano instead. Yeah! So that I could hear that it went…blargh! It really didn't...it really, really didn't fit at all. I think that, yeah, that was to make the ending more interesting instead of just going down the scale and just ending on the C. You can make it whatever you want. [I'm trying] to have a trill in the middle and then end on the C. That was a failed attempt as well.
P:	So have you tried the bass along now?
S:	No, the bass bit's after this. This is before the bass bit. That was trying to get the trill. But it really didn't work. Just the idea didn't work. I had all of the notes, I had all the right stuff just the idea, it just pheergh.
P:	Which sounds are you working with here?
S:	Just normal piano, piano acoustic. Yeah acoustic piano that's the one. Yeah, so I change the sounds so the bass actually sounds like a bass and the er cha cha is a guitar and then the thing is a piano [73]

However, later in the unit he moves towards recording improvisations as he uses the MIDI keyboard and then judging and crafting these improvisations. For example, towards the end of Lesson 2.6 Sam improvises an ending. He appears to realise, by listening to it, that it goes on for too many beats (judging), so he cuts the end of the bar (crafting):

[73] SVSR2.2 ref105

S: And then I did, I think on that one, a little bit of just improvising; what I do at home with my dad. Ah, that was, the bar went longer than I anticipated, instead of doing an ending which ended there it kind of scribbled it over which, well, I didn't exactly want so I just cut it off.
P: How did you know to do that?
S: Listening through it again.
P: Right, and how did you do that, how did you make it shorter?
S: Using the cut thingy which is the knob there somewhere and just cut off the end of the bar. (Looking at screen) OK! I've gone into that and I don't know why. Oh, yes, I do, to make it so it ends on the beat not goes over the beat. [74]

The second composing task reveals an even greater shift towards this approach. For example, during the final interviews, Sam's comments on his approach to working reveal a similar use of improvising and recording, judging and then crafting:

S: I played both of my saxophones and only used them, not a range of different instruments, plus I asked Charlie on what he thought about it and took what he thought into account and if it was, for example, "Narr, that really didn't sound good, mate" then I would take that section and 'mess' around with it till I thought it was better then asked him again and like whys but the other way around.
S: I started looking at different parts from different pieces that had a saxophone in to get an idea of the sort of thing I would like to try and do from that I then started on my main pattern. This did go quite well and I only had to change a tad. That was then recoded and left alone. I then went back did some work at home to get a middle section by bouncing ideas with my friend. Later I then recorded that and made minor adjustments to that and found the effect on the Mac that fitted with the sounds I had in my head, put that over the top and then finished.[75]

Video from the penultimate lesson in this phase shows this process as Sam records, listens to and then makes small changes to his saxophone melody as he re-records[76]. This is highlighted in Figure 5.21.

A notable change between Sam's composing stages 3 and 4 is that no increase in crafting with the MIDI keyboard is evident. Indeed, analysis of the observation and interview data reveal no evidence of a MIDI keyboard being used. However, there is a significant increase in Sam's use of a saxophone and a microphone over the course of this project. This appears both in early field notes and pictures and emerge from later video observation and interview data. For example Figure 5.22 shows Sam using a bass rather than a saxophone. This is confirmed by the field notes from this lesson:

12.41 – Helped Sam to set up equipment for recording from bass. He than began working on II V I patterns, tried them out by playing and recording and then going back and working out different patterns.

[74] SVSR2.6 ref156
[75] SI3.5
[76] SCV3.4

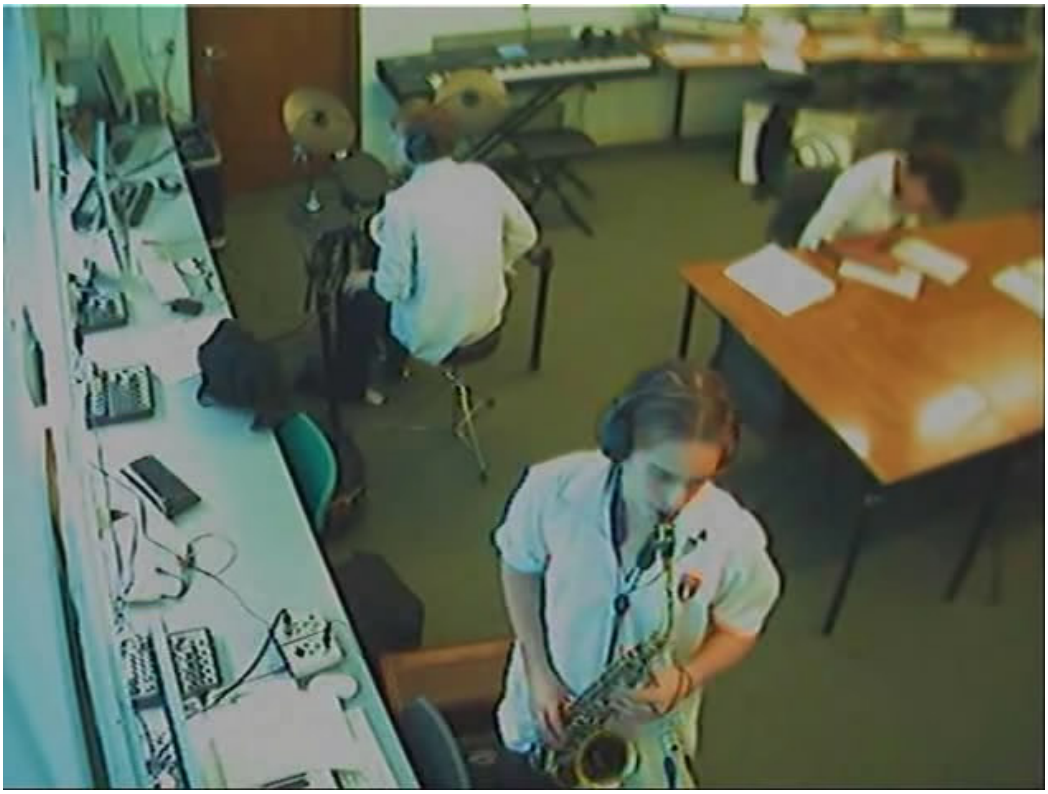

Figure 5.21: Sam recording a saxophone melody.

Figure 5.22: Sam using the bass[77].

[77] CV3.2

In contrast, the video and interview data noted previously support the notion that Sam uses the saxophone in his later work. Thus his improvisational use of the MIDI keyboard during Phase 3 appears to be transformed into an improvisational use of the saxophone, an instrument with which he is more proficient.

Therefore, as well as a progression from worksheet-based ideas that were recorded, judged and crafted in an improvisational unfolding, Sam also progresses over the course of the two projects in terms of improvising on the saxophone, an instrument with which he is more proficient. This is made possible through the change in resources from MIDI keyboard to microphone, but also directed by the change in the task discussed in Section 4.5.

Towards a musical encounter: listening and looking

A third and closely related change in Sam's composing process that can be related to the teachers' work with Sam is that the shift away from worksheet-based composing focuses Sam's attention on the computer screen and the playback of his composition through the computer speakers. This development is exemplified in the previous discussions of the shift towards improvisational recording, judging and crafting, and also in the patterns of working that emerge in the use of these strategies in combination. For example, when Sam discusses his improvisation of an ending during Lesson 2.6,[78] he states that he knows to do this by listening to it and by looking at the screen. While it is problematic to assume that Sam only judges and crafts his composition *because of* the computer, it is certainly true that he uses the affordance of the screen to see his music and the playback function to hear his music. Consequently it can be conjectured that his move away from the worksheet and onto the computer contributes to his progression in improvising, judging and crafting.

A revised musical task: product and process

A final development in Sam's composing process, related in particular to his interactions with the class teachers, is a shift from a focus on a musical product towards one on the process from which a product emerges.

We have previously seen that the explicit task criteria for Task 1 focus on composing a musical product according to strict conventions. However, over the course of this task there is a shift in the focus of the task towards greater freedom (4.5). Alongside this, Sam demonstrates a progression from an initial exploration of specific notes and ideas that fulfil

[78] Full discussion above (this section)

the demands of the 'questions' on the teacher worksheets towards an exploration of the opportunities afforded by the context in which he is working. For example, Sam's worksheets confirm that his early work can be characterised as short, clear answers to the questions (see Figure 5.23), with little working. The field notes confirm the use of the worksheet to focus on supporting the generation of specific waltz ideas:

> Today's lesson built on their previous work on waltzes and activities supporting students' understanding of bass lines, accompaniments and melodies over the past 3 weeks. They were given a worksheet to complete in which they can write down in turn the separate parts of their complete composition. SW emphasised the use of ¾ time, accents on 1st beat, chords (simple). The melody was proposed as coming after the bassline and accompaniment. The left hand was emphasised as containing many of the important features (Oom Pah Pah, Root, ¾ time). Students have to write it out first then record it. Students worked on their own instruments throughout the department…Sam in room L18.[79]

We have previously seen how the worksheet questions were derived explicitly from the examination assessment criteria. In addition, the field notes make it clear that the process of composing was originally introduced as a separate task from that of recording. In other words, the original focus was the completion of a written composition that met the requirements of the examination and which would later be heard by recording in onto the computer. Sam's first critical incident interview confirms that his first lesson was spent transferring the work completed on his worksheet onto the computer[80].

This limited exploration of notes and ideas develops into an exploration of the medium or the different ways in which the *Cubase* software allows him to change his composition. For example, Sam describes how he is exploring the use of the 'panning'[81] control in the track section of the arrange screen during VSR 2.4.

S:	Now my head...now I'm listening with it through both ears not just one.
P:	Oh, I see your mouse there is moving backwards and forwards; the slider.
S:	Yeah! Trying to find it and that looks like it's; yep, that's the place. There I was trying to find where to put the slider.

[79] FN6
[80] SVSR2.3
[81] Panning refers to the process of routing sounds to specific places (usually left and right) in a sound field in order to create a sense of distance between the instruments.

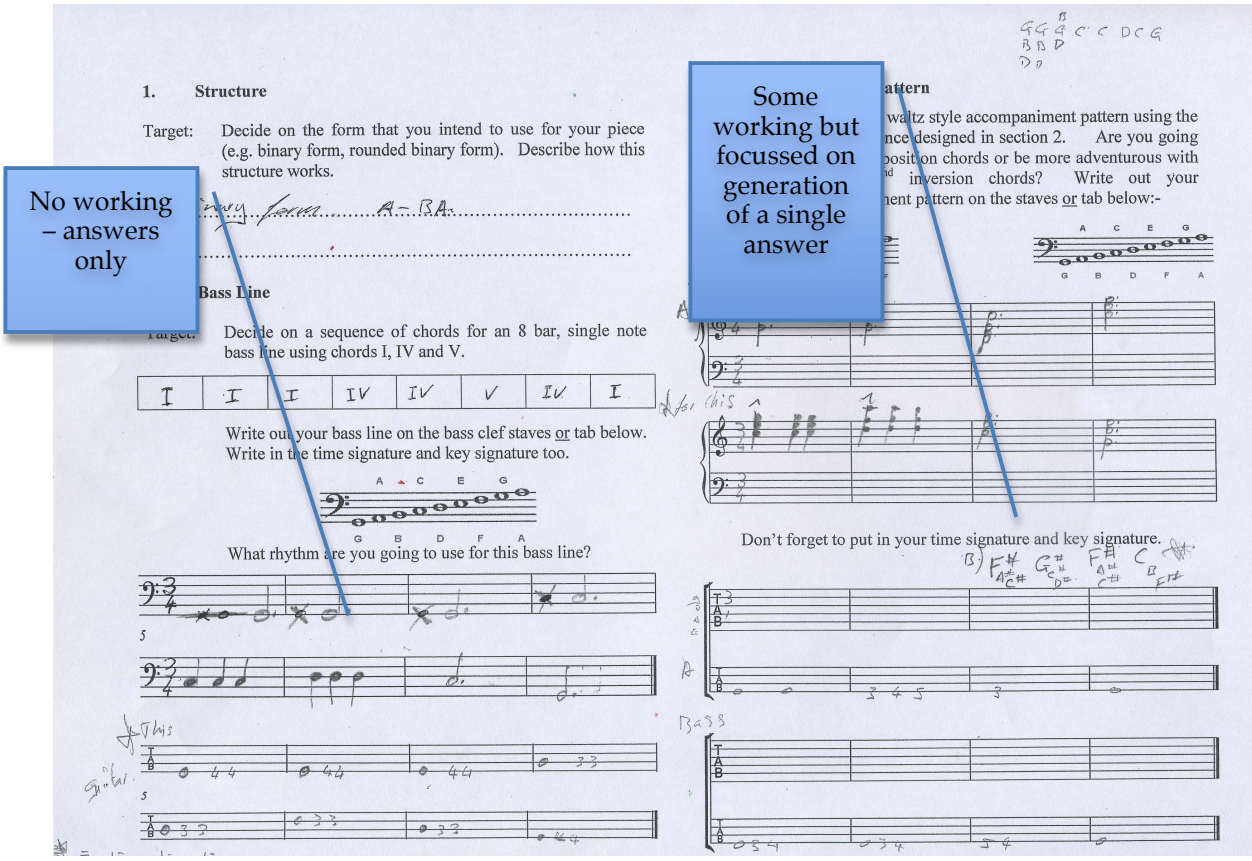

Figure 5.23: Sam's completed worksheet.

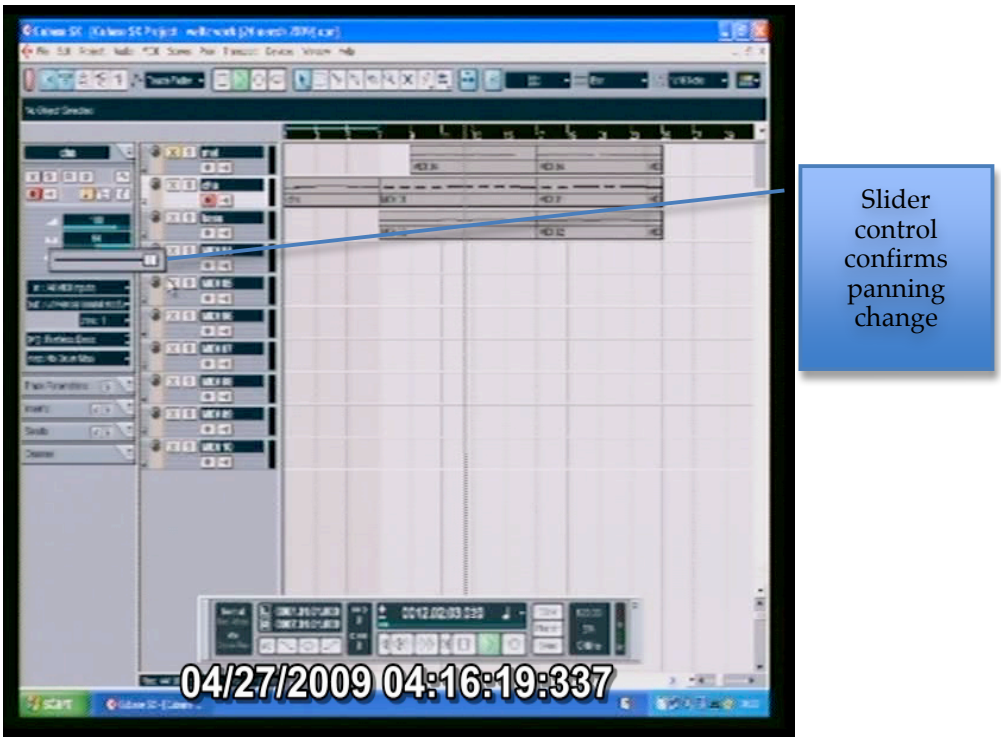

Figure 5.24: Verification of Sam's articulation of exploring the panning slider[82].

[82] SCV2.4 04h01m02s

While he does not clearly articulate the use of the arrange screen, the 'panning' control is most easily visible from this *Cubase* screen. This interpretation is verified in Figure 5.24 which shows the mouse over the panning slider in the *Cubase* arrange screen. In this way, Sam replaces his early focus on the product of composing with a process-focused exploration of the possibilities for his piece when composing with the software program *Cubase*. Furthermore, Sam's Phase 3 explorations of the functions in the software allow the addition of effects to audio recordings, which come to characterise his final composition. These explorations are noted in the field notes:

> Sam has continued to work with the sax and effects in *Garageband*. He is recording and then adding different effects to each track. He then listens back. This has been done several times in the same order: record – add effects – listen back – change effects – listen back.

Thus the product focus of the initial phase encourages Sam to focus on answers that address isolated aspects of the 'product' and which relate directly to assessment criteria. In contrast, the process focus of the later stages supports a shift towards working with the features of the software as a form of exploration.

An additional example of exploring in this way is seen when Sam searches through the timbres available during Lesson 2.3. This episode was previously discussed in Section 5.2.1 as an example of crafting. In fact, this progression into crafting as exploration is the second significant pattern that emerges alongside the shift from product to process focused working. A further example of this form of crafting is seen when Sam is working with his saxophone during Phase 3 of the study. He repeatedly uses the computer mouse to explore opportunities to use the software, for example, by moving tracks, copying tracks and trying out different effects[83]. Through this process the strategies of crafting and exploring are consolidated into single actions. It is also notable that one of the technology -based opportunities taken by Sam is also a conceptual interaction: copying tracks is repetition (musical device). The pedagogic shift towards a focus on the process of composing is concurrent with a move by Sam towards developing his composition by exploring the opportunities the digital technology offers to craft his existing ideas. In exploring the digital technology as a new medium Sam consolidates the strategies of exploration and crafting into a single action.

Thus over the course of the study there is a gradual shift in Sam's process from a convergent focus on the product to a balance between exploratory processes that promote the refinement of an outcome. As Sam's personal approach to music is more exploratory and expressive in nature, the increase in exploration as crafting is evidence of his increasing

[83] SCV3.4

engagement with, and ownership of, his classroom composing process. This theme of growing student ownership of the composing process is developed further in the following section.

5.3.2. Sam, Composing And His Peers: Collaboration, Communication And Translation.

In the previous section I presented the case of Sam's interactions with his teachers and how they reveal a progression from a heavily structured procedure, focused on the attainment of success in relation to examination assessment criteria, towards greater student freedom that focuses on the products and processes of composing and further, that this progression underpins Sam's compositional development towards an increasingly personal improvisational and expressive way of working. In this section we will examine a concurrent shift in Sam's interactions with his peers. This change moves away from following teachers' instructions and towards student-led communication, or collaborative working. I came to see this development through Sam's increasing capacity to forge links between his classroom composing and music outside school , as well as with other members of the class as collaborators mediated through digital technologies.

Over the course of the study, Sam's composing shows a progression in relation to four ways of working: a) transcription that is not like his music making outside school, b) failed attempts to bring ideas and ways of working into school from outside, c) attempts to transfer ways of working into school with some success, d) becoming able to work inside school in the same way that he does outside school and transfer ideas between the two. Each is discussed in turn.

Transcription as a new skill

An apparent disconnect between Sam's experiences of composing outside school and inside the classroom is evident between his descriptions of composing at home and his composing during the first critical incident[84]. In earlier discussions with Sam, he told me about the ways in which he composes outside school, identifying three different ways of working: a) his father who would shut himself in a room until it was finished, b) improvisation with his friend Jake who plays the guitar and c) his saxophone teacher who encourages him to improvise over a given chord pattern. In the following excerpt, Sam describes these different ways of working.

[84] SVSR2.3

> I would say there's several ways of composing. There's composing which my dad does, used to do, which was he used to go away,lock himself in a room with a piano or a drum kit and just stay there for days on end working it out. Not letting anyone in and not letting himself get out which personally I think its a bit deranged and a little but strange but if it worked for him, it works for him. Then you've got Jake and I who go into a music room, have a quick jam and then sit down and think about what we're going to do and then work it out, and if it doesn't sound right, we'll scratch it and go back to the drawing board and do it again. Which works in our case… yeh, erm, Jake and I in the music room, cause Jake plays guitar as well so he picks up a guitar and we say er let's go from E, take an example, just go from the E and just see where we go for a quick jam and if we come up with anything once we're in there, if we come up with anything whilst we're having a jam, we'll stop, write that down, go over it make sure it sounds right if we've got the right bit and then carry on from that bit and kind of expand it until we've got something. Then it'll stop at that ..don't know... three lines down ...(gestures) erm complete lines, and then go back to the beginning, play it all the way through, and if that sounds all right, well, we'll continue doing that and add six bars and go back to the top play it all the way through, erm, yeah, that's, that's kind of how Jake and I do it, and I just normally do composing stuff with Jake. He's got several saxophones so he just pick up the sax, I put my sax together , stand up erm, have the music in front of me, er, there's about 9 bars of written melody and then chords over the top of the improvisation....entire huge section of improvisation where you can do absolutely everything you want as long as it sounds half decent[85].

It seems from Sam's description above that these approaches share common features such as occurring in 'live' settings using acoustic instruments, holding immediate expressive potential and involving the generation of many new ideas in response to open questions. In contrast, and as we have seen, Sam's early composing in school sees him working on short answers to generate answers to a waltz worksheet. During the first critical incident Sam begins to transfer these onto the computer (recording) using the 'MIDI keyboard' and 'computer screen and mouse'. For Sam, recording at this stage is a process of 'transcription' or translation of a set of pitch and rhythm values out of time, on his own and either on a keyboard or using the mouse between paper (paper and pen) and computer (computer screen and mouse; MIDI keyboard)[86]. While having some aspects in common with his father's experience of composing in isolation, this school-based 'transcription' activity is dislocated from the inventive, expressive, live and acoustic aspects of his experiences outside school. Thus his first experiences are that composing inside school and outside school are vastly different.

Lost in translation

Following on from this, during the second critical incident, Sam makes a significant attempt to use work from his composing activities at home as part of his waltz composition. At this point he is unsuccessful, as in his previous attempt. Sam talks about this attempt to use an idea developed at home in the interview following Lesson 2.3.

[85] SIPF
[86] SVM2.3

S: I...erm...yeah I yesterday (er) I had a friend over, er, doing that cause he does music as well but I' m helping him with his (erm) composition pieces and listening to record them and get it from there…and him and I were just (er) on the bass and guitar yesterday twiddling around, figuring out what he wants, and doing that gave me an idea so I had the idea, brought it in today and tried it out on the bass and it worked, it fit and I could change it from 4/4 to 3/4 and it would still fit which was awesome. So (er) I took that and incorporated some of that into the waltz piece and by the end of it realised that I had got a complete and utter error and had to do it from scratch again… So what I did, I played it on the piano instead...yeh....so that I could hear that along with that..but then…it went 'blargh!'

P: So as you were working next door ...you were thinking it was fitting OK? (S nods) and when you came in and tried it along?

S: It really didn't...it really, really didn't fit at all

These comments suggest that Sam is happy with this idea in isolation and feels this will work with his waltz. Yet when he begins to work with the idea as part of his waltz on the computer, he appears to decide that it does not fit. It is clear from his description that the evaluation of the success of his new idea in the new waltz context is only possible after his transition onto the computer. The MIDI (Figure 5.25) and video file[87] from this section of the lesson confirms that Sam works (crafting) with an idea that is never recorded as part of his composition. The screenshot shown in Figure 5.26 confirms that Sam works on the keyboard idea at this point. On the music score Sam's new idea is labelled as 'Y' each time it occurs in different permutations. The continued recurrence of the same idea in different ways is consistent with a process of crafting it using the MIDI keyboard.

His comments in the subsequent interview (above) confirm this failed attempt and suggest that he is frustrated with his lack of achievement during the lesson. They also seem to convey a fatalistic sense that 'this was bound to happen'. He appears to be unable at this stage to transfer ideas into school and build on efforts with his peers outside school. In actuality, this idea reappears in a later lesson (outside the critical incidents) and becomes the basis for his ending. However, at this stage there appears to be a breakdown in the transfer from home to school that results in a failure to record the idea onto the computer.

[87] SCV2.3 04h23m47s - 04h28m51s

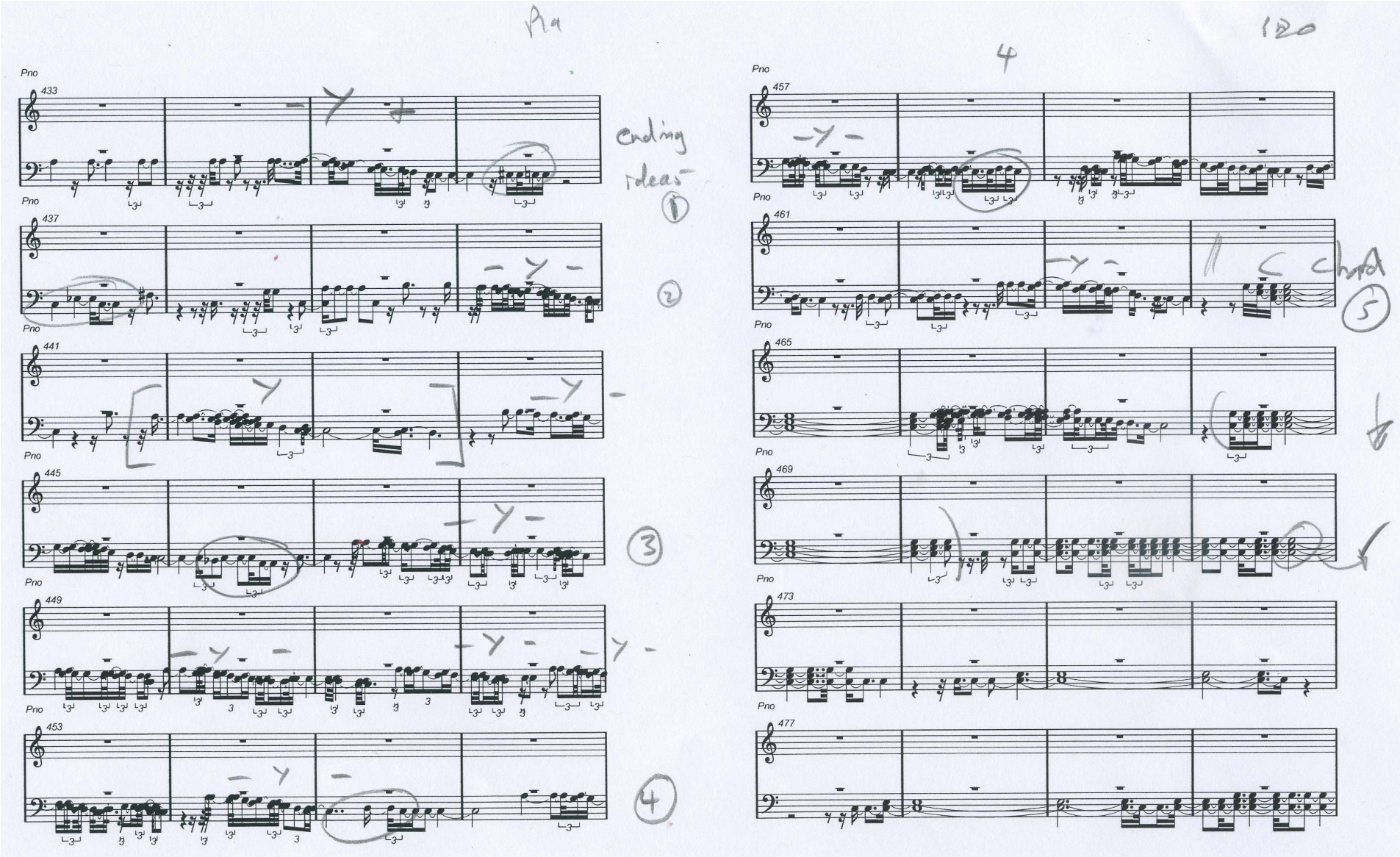

Figure 5.25: Sam working with a new melodic idea on the MIDI keyboard.

Figure 5.26: Sam attempting to fit an idea from outside school into his Waltz.

Transferring ideas

A significant development occurs during the third critical incident as Sam begins to explore possibilities for his introduction. At this stage he moves towards a greater use of improvisation as a method of exploring ideas for his introduction[88]. We have previously discussed this shift towards improvisation in Section 5.3. Indeed, this move towards improvisation is a first example of Sam transferring of ways of working from outside to inside school. Of importance at this point, however, is a second collaborative way of working that transpires through the medium of the digital technology.

Analysis of Sam's strategy use with social interactions across the critical incidents reveals a shift away from working with the teacher towards collaborating with his peers outside the classroom and then with his classmates. This is illustrated in Figure 5.27 which shows Sam's strategy use with social interactions over the three critical incidents. Figure 5.27 reveals the shift away from teacher-mediated composing and towards focussing on his composition in collaboration with peers.

[88] SCV2.4

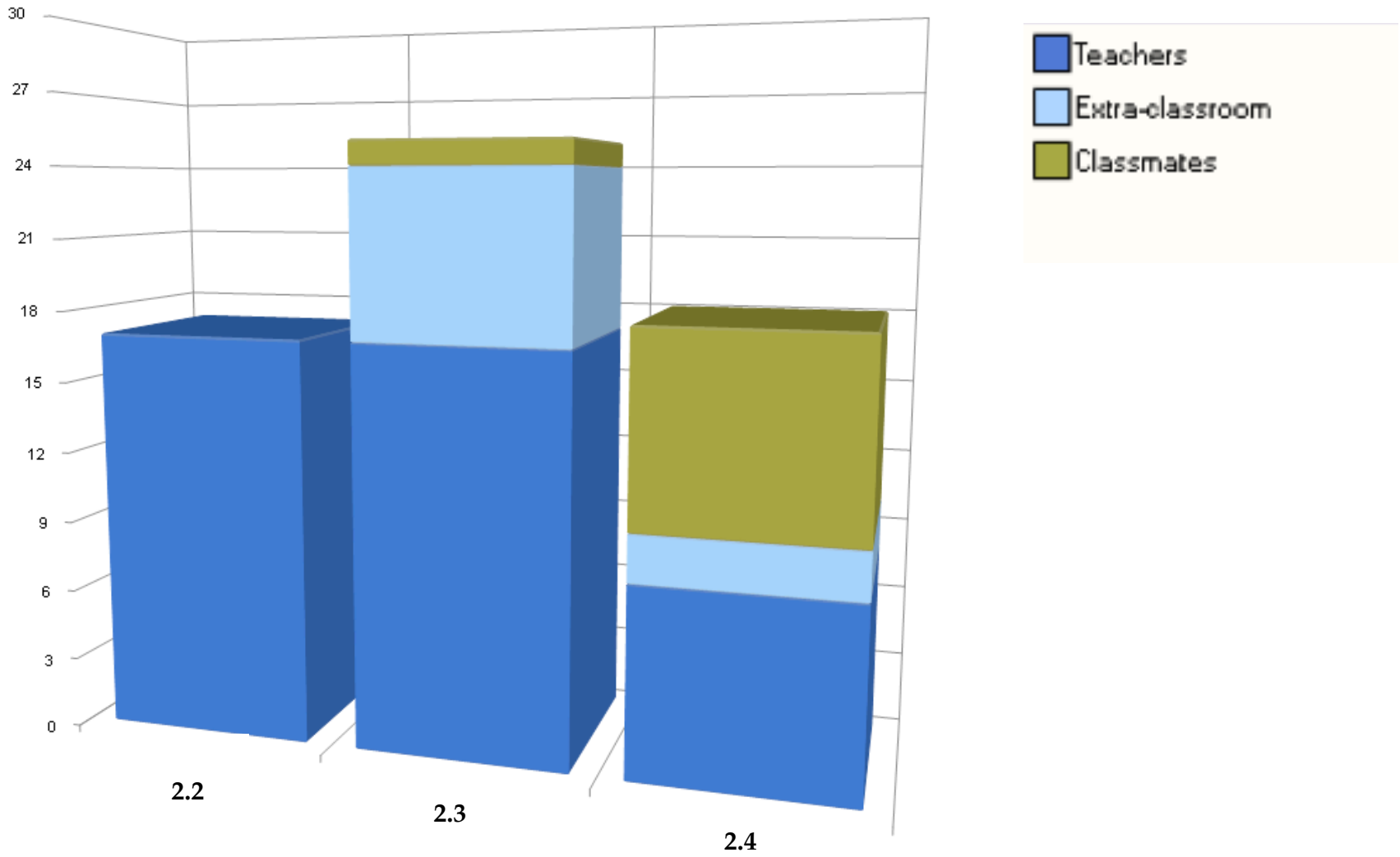

Figure 5.27: Sam's strategy use with social interactions over 3 critical incidents.

An example of one such collaboration begins when Sam turns to his neighbour and asks to listen to his work:

S:	Well - can I listen to yours?
C:	Yeh OK.
S:	(Gives C earphones)…OK?
C:	What key is that in?
S:	I dunno. That one (points to screen)
S:	I don't know I'm hoping it was in G. I'm hoping.
C:	Have you done your 2 sections?
S:	Mm (laugh), do know one thing though, I have run into a singular problem.
C:	Which is?
S:	That note.
C:	Is too hard.
C:	Moves mouse.
S:	No, no, no, too hard as in the note.
C:	Change the velocity.
S:	Yeah, that's the point I don't know how to change the velocity.
C:	I do, shift over.
S:	Hang on.
C:	No, don't do anything.
S:	Have a chair.
C:	Its velocity so gotta find it now. Add or subtract?
S:	Yeah, I want to subtract.
C:	How much does it go..this is slightly different to the one I've done so I know roughly what it is.
S:	I was going to say round about 50
C:	Really?
S:	Yeah, that should be fine...looks good. Yep! Perfect. I hate you.
C:	Is that OK?
S:	Yeh (laugh).
C:	What the bloody hell is this? (points to screen).
S:	I have no idea.
S:	Chris, Have a gander.
C:	Listen to my one.
S:	If it wants to. There it is.
S:	Oh that' s awesome.
C:	Yeah it's good.
S:	Yours is great.
C:	No, it's not
S:	Yeh it is…damn you. I really like the second bit. If it will go back that bit over there.
C:	Yours is good. I like the way you panned it with the mics.
S:	Yours is really good. I really like that. I may have to nick that idea. Aaah!. (they swap headphones).

This exchange, which involves Chris listening to Sam's work and then giving feedback, is typical of the short, informal exchanges that begin to take place more frequently during the third critical incident. While short, this discussion covers issues of (in order) key, form, timbre, general success, panning[89] and musical motifs.

When compared to Sam's interaction with other contexts, it appears that computer-based tools may provide support that allows him to begin to communicate more specifically about the musical ideas he is working with in his piece. In addition to the specific reference

[89] Placement of instruments within a stereo field.

made to how the music sounds and looks in the dialogue, Figure 5.28 shows that the rise in collaborative working is concurrent with a similar rise in his use of computer-based tools.

While some peer discussion of work on the teacher-designed worksheets is evident in field notes made during the project, at no time are similar musical collaborations evident in Sam's work on acoustic instruments that focus on work towards completion of his composition. Thus this type of computer-mediated communication is the only example of peer collaboration that specifically focus on the development of Sam's composition. Nevertheless, at this stage Sam's ideas are still being generated in school. Thus his improvisational and collaborative ways of working are emerging in the computer-mediated classroom environment but his out-of-school ideas are not yet transferring into school.

Working as an interpreter

The final stage in the development of Sam's ability to employ collaborative ways of working inside school is his successful transfer of musical ideas into his classroom composition, which have been developed collaboratively outside school. I have already suggested that Sam repeatedly tries to make this kind of link, and I found that these attempts have been unsuccessful both earlier in his school career generally and in this waltz project specifically. In contrast, during this final stage Sam appears to start using his existing external networks of support to generate ideas that prove fruitful in his classroom composing. This stage falls outside the critical incidents identified by Sam. However, it is included as it was the same progression, both in the final recording of his waltz composition and also in his Phase 3 composing.

Previously, I presented the second critical incident in which Sam unsuccessfully attempts to translate an idea composed during a collaborative session with his friend so it can be used in school. The idea can be described as a downward scale beginning on 'a' and ending on 'c' and is exemplified in his work on the MIDI keyboard in Figure 5.29 (highlighted as motif 'Y'). Figure 5.29 shows the same motif now employed at the ending of his piece. While it is possible that this idea was developed independently - a downward scale of six notes is a common device - it is equally likely that this is an early example of his collaborative work being transferred implicitly.

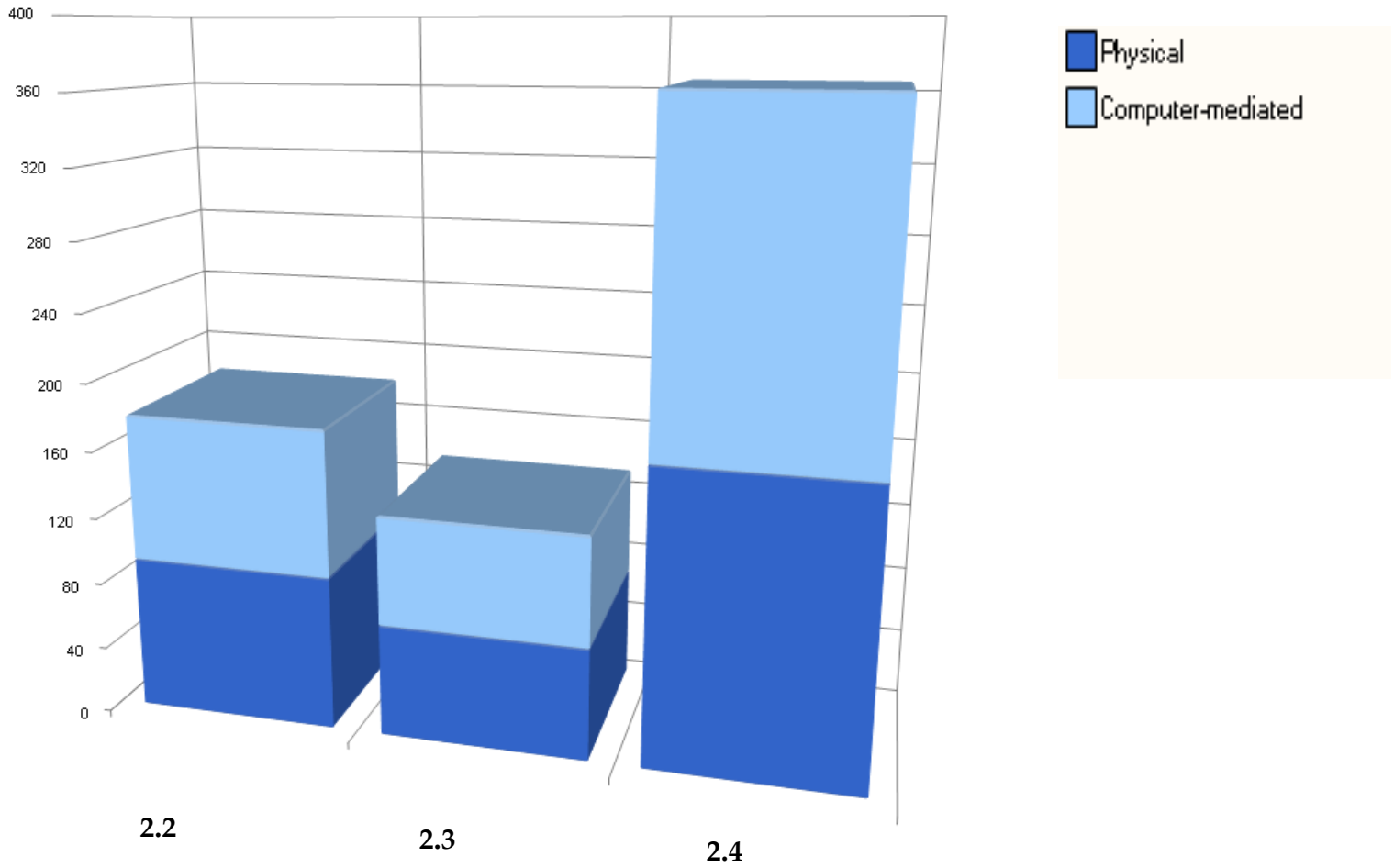

Figure 5.28: Sam's strategy use with physical and computer-mediated contexts over the critical incidents.

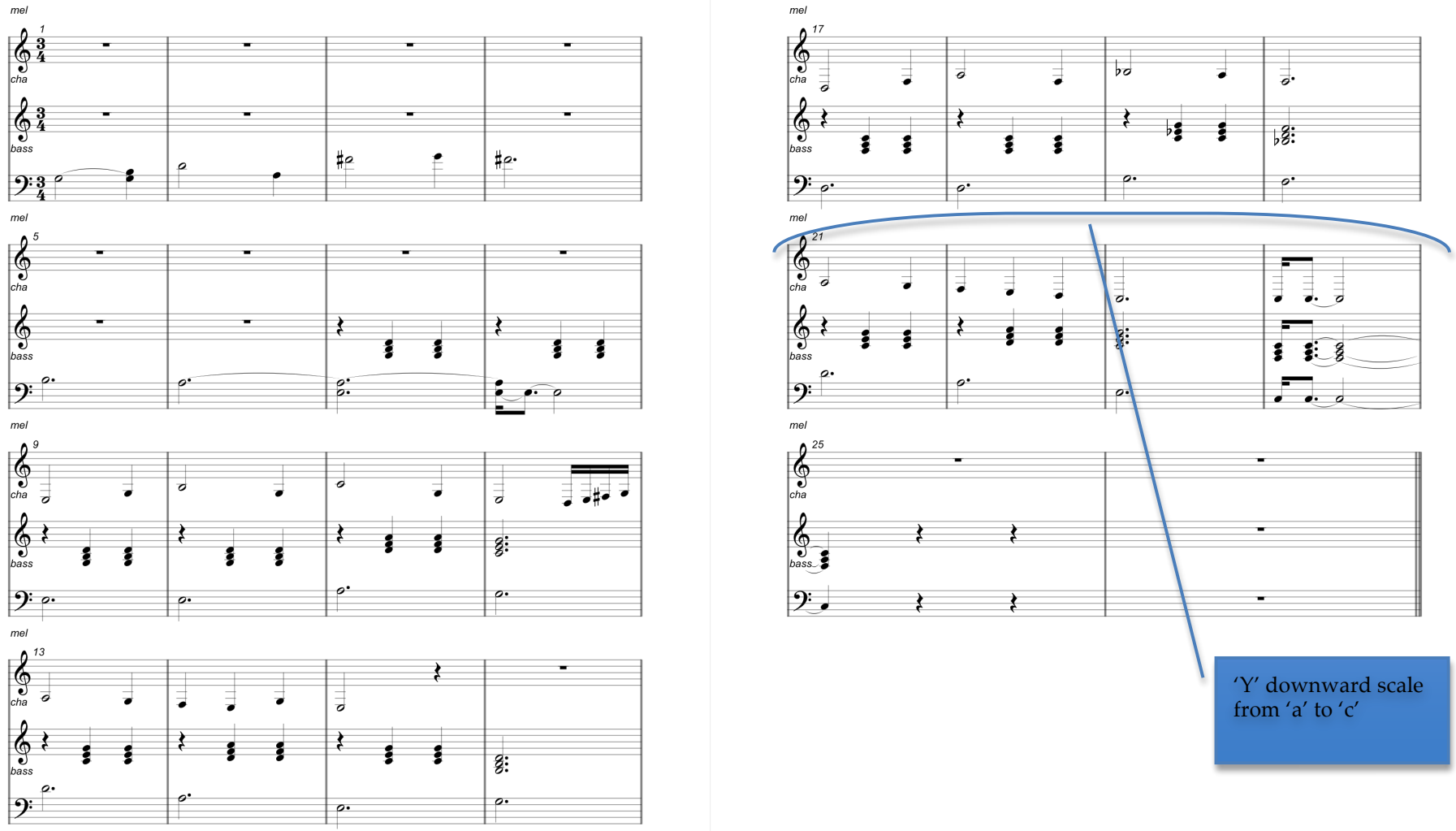

Figure 5.29: Sam's final waltz composition score with collaborative ideas marked 'Y'.

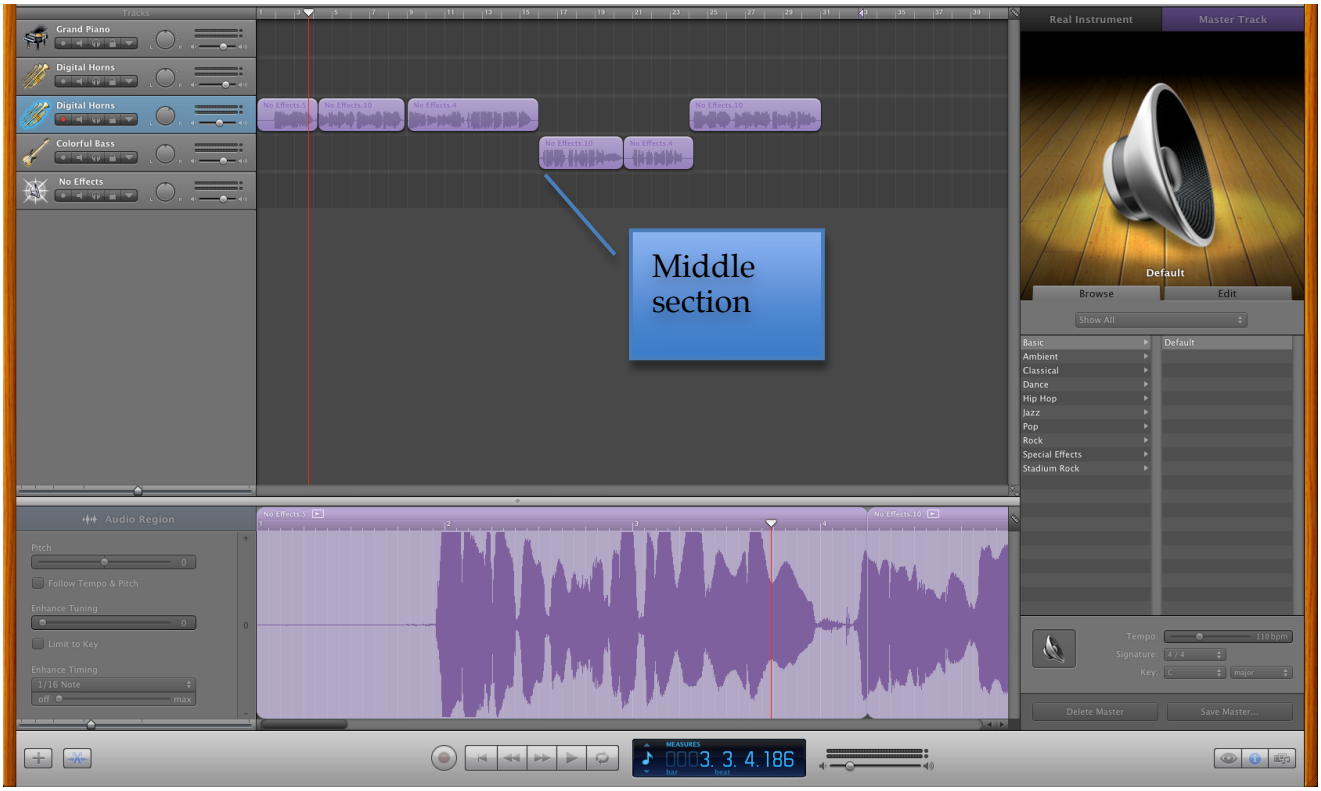

Figure 5.30: Sam's final screen view clearly shows contrasting middle section.

A second, and perhaps more prominent, example of Sam transferring ideas developed collaboratively outside school into his classroom composition is seen during Phase 3. Sam discusses his approach to composing with his saxophone during the interview following Lesson 4.5:

> I started looking at different parts from different pieces that had a saxophone in to get an idea of the sort of thing I would like to try and do from that I then started on my main pattern. This did go quite well and I only had to change a tad. That was then recoded and left alone. I then went back, did some work at home to get a middle section by bouncing ideas with my friend. Later I then recorded that and made minor adjustments to that and found the effect on the Mac that fitted with the sounds I had in my head, put that over the top and then finished.

In this discussion Sam appears to be saying that the middle section of his piece is derived from work with his friend. The final screenshot (Figure 5.30) of Sam's piece corroborates the presence of a middle section, which can be heard in the final piece on CD Track 3.

Not only this but, as was suggested in Section 5.3.1, Sam appears to have an improvisational approach during this Phase, using his saxophone, a microphone and *GarageBand* software on the computer. Whilst composing in this way, Sam frequently talks informally with the other students in the room about their developing compositions. For example, Sam describes talking to Chris about his piece:

> I asked Chris on what he thought about it and took what he thought into account and if it was for example 'Narr that really didn't sound good mate' then I would take that section and 'mess' around with it till I thought it was better, then asked him again and likewise but the other way around.

This conversation about Sam's piece also features in my field notes from Lesson 4.5, and follows a conversation and a segment of recording by improvising new patterns:

> Sam: 12.41 - Recording from bass (record, cut, paste, listen - multiple take). 'Working on II V I patterns, on bass. Worked out a couple first, tried them out by playing and recording and then going back and working out more different patterns'. Some discussion about Sam's piece (S & C).

So Sam is now not only using similar improvisational ways of working and collaborating with his peers successfully in school, but is also transferring musical ideas into school and so making use of his existing musical networks outside school. Thus Sam's development appears to pass through four stages a) transcription that was not like his music making outside school, b) failed attempts to bring ideas and ways of working into school from outside, c) attempts to transfer ways of working into school with some success, d) becoming able to work inside school in the same way that he does outside school and transfer ideas between the two. This shift appears to move Sam away from a rather constrained 'teacher-led' way of working and towards a more collaborative and improvisational approach. These collaborations are mediated firstly through digital technologies and later with peers outside school.

In the next section we go on to examine a final feature of Sam's composing over time, which appears to underpin his shift towards a more personal approach to composing: his developing ability to shape the context within which he is working.

5.3.3. **Sam's Computer-Mediated Environment: Re-tasking To Connect**

The increasing freedoms afforded to students, which appear to result from changes in pedagogy, were explicated in Section 4.5. Alongside these changes, and contingent upon them, I saw a progression from 'disconnection with a fixed classroom context' to 'connection with an adapted classroom context'. This progression was manifest in Sam's uses of a 'time away' strategy.

Initially Sam's use of time away suggested to me that he is not engaged with the composing task. Indeed none of the instances of time away, either for short or longer periods of time, appears to impact upon Sam's working when he returns during these early lessons. Sam comments on one such occasion during Lesson 2.4

> P: OK! So that's not related to your composition, is it not?
> S: No, that's just making a point to Hannah.

P: Hmm.
S: It's slightly off track but…

Here, it appears that he has been engaged in a conversation with Hannah that is unrelated to any composing activity. In addition, for each of the critical incidents Sam returns to composing in the lesson by listening to the previous lesson's work[90]:

> That was running through what I did last lesson, just listening through it, making sure everything was correct, which it wasn't which is typical.

This statement supports the notion that Sam has made little or no progress with the composition between lessons. Even his borrowing from a friend during critical incident 2 that could be considered to be 'time away' and which has given the idea time to germinate, appears to be accidental rather than planned.

> And him and I were just (er) on the bass and guitar yesterday twiddling around figuring out what he wants, and doing that gave me an idea so I had the idea, brought it in today and tried it out on the bass.

The dialogue suggests that this work was composing for his friend's composition. Thus, there seems to be little active use of 'time away' as a strategy. Rather, the time away at this stage is circumstantial and reliant upon lesson structure, school timetabling and interruptions from peers and classmates.

However, over the course of his development Sam appears to demonstrate an increasing use of time away actively to restructure the parameters of his composing context, including the task, his working relationships and the instrumental resources he employs. The changes in task and working relationships have been addressed in Sections 5.3.1 and 5.3.2. Examples of changes in instrumental resources can be seen between Phases 2 and 3, and within Phase 3.

Between Phase 2 and Phase 3 there is a significant shift in the digital technologies Sam employs. Phase 2 composing has been carried out using PC computers running *Cubase* music software with a MIDI keyboard (Figure 5.31). In contrast, during most of Phase 3 Sam chooses to use Apple Macintosh computers running *Garageband* software, a microphone plugged into the computer and his saxophone (Figure 5.32). During this transition Sam makes use of a new opportunity to use 'The Blue room' during Phase 3. This is the school music room that is usually used to teach music technology. The opportunity to use it during music lessons has been given to the whole GCSE class after a classmate has

[90] SVSR2.3

requested access to work on their composition. The use of these systems is corroborated also by the video data[91] and field notes[92] from these lessons.

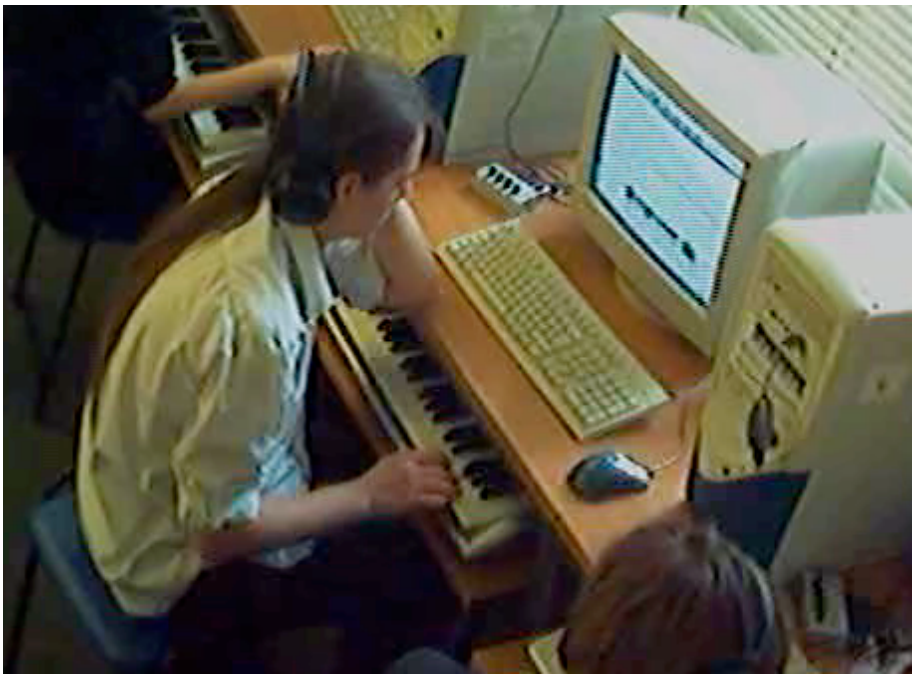

Figure 5.31: Sam using *Cubase* with a MIDI keyboard[93].

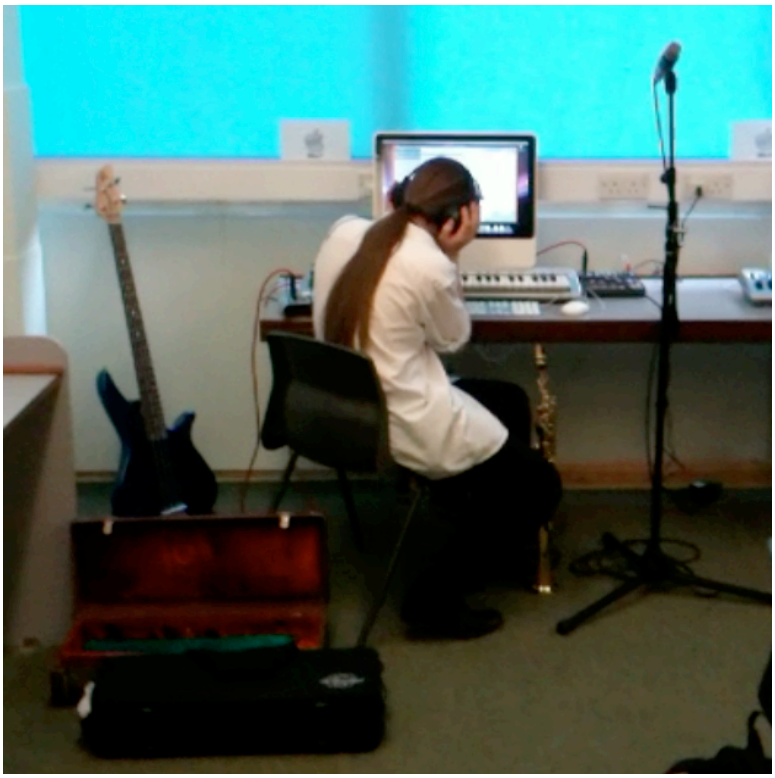

Figure 5.32: Sam using *GarageBand* with a microphone and Saxophone[94].

[91] SVM2.3
[92] FN6-7
[93] SVM2.3
[94] SVM3.4

Over this transition Sam endeavours to select a working environment that will allow him to operate in a style which is closely related to his descriptions of work, both with his friend outside school and also with his saxophone teacher. While *Cubase* software does have the facility to record using a microphone in much the same way as the program *GarageBand*, network restrictions on PC computers running *Cubase* mean that this facility cannot be used in practice. Initially, however, the Blue room was set up to allow students to record from guitar or keyboard onto the computer, but not from a microphone. Sam begins by working on his bass as described in his subsequent interview[95]:

> I had the change from using a bass right at the start. I did my solo with a saxophone so I did my composition with a saxophone as well. Other than that, no I didn't have any real problems.

Sam's comments suggest that he sees his use of the bass as a problem because the examination criteria require that he use the saxophone for composing. Despite having this information at the start of the project however, he begins to work on the bass guitar as is suggested by the room layout. At this stage Sam is choosing the environment to some degree, but not yet shaping it to meet his needs. Yet after the first composition session he then begins to use a microphone. The following lesson, the microphone is requested by Sam to provide a means to record his saxophone rather than a bass. As a technical assistant in the class, I assist in its set-up and provide basic instruction at Sam's request. This is described in the field notes[96]:

> Sam moves from the bass and begins to work on his saxophone. We set up an *SE4* Condenser [microphone] through an *IO2* [audio interface] after he said he wanted to use his sax. At this stage I made sure that he knew how to select the correct input to record into *GarageBand* from the microphone.

This is also described by Sam in the subsequent interview[97]. Here, he appears to make a link between the presence of the microphone and the way in which the music 'kinda flowed out', suggesting that this environmental affordance is key to meeting his composing needs.

> I used the Macs plus I used this little box type thingy that allowed me to play in real life and get it recorded on the Mac with the help of a microphone too…I played into the microphone that pick the sound of the saxophones and fed them into the Mac and in to the program itself, then using the program…I did enjoy this project, mostly because it was kind of fun to have a set time and having to make a piece that is entirely yours. As normally I have forever and a day to finish a piece normally, and I have Jake with me. I believe that at the time I had a set thing in my head that I wanted to do, all I really needed was a little time and a push to get started and then **it just kinda flowed out**[98].

[95] SVSR3.5
[96] FN6
[97] SVSR3.5
[98] SVSR3.5

By selecting a new working environment and seeking help in adapting it to his composing needs, Sam now appears to be actively shaping his composing context. Furthermore, Sam's comments about the project also suggest a sense of enjoyment and ease during this Phase: 'it just kinda flowed out'. Thus in the week between his use of the bass and the lesson in which he requests the microphone, he has used the time away to restructure his composing context. At the end of Phase 3 Sam is both selecting appropriate resources to suit his composing needs and also making use of the freedoms granted by the class teacher to restructure his working environment to make the most of his experience and abilities. In this way, I came to see this as a transformation in his connection with computer-mediated classroom composing.

5.3.4. **Summary**

Sam's trajectory of compositional development with computer-mediated environments over time and in a classroom community appears to move towards a personal style of exploration and expression. He demonstrates a shift from a pedagogically structured focus on convention towards 'rule breaking' and exploration through improvisation. This is seen in his use of judging and crafting, in listening and looking, as affordances offered by the computer-mediated environment and in a shift towards a focus on the process of composing. In a second progression, he appears to move away from transcription and teacher-led patterns of working and into attempts to bring ideas and ways of working from outside to inside school. These are ultimately successful, firstly in the transfer of ways of working and later in the transfer of musical motifs and ideas. Finally, Sam appears to transform his detachment from a fixed classroom context into a connection with an adapted classroom environment in which he exhibits much greater control over his own composing process. Having presented Sam's composing process and examined his developmental trajectory across the course of the current study, I will now move on to introducing Emily who works in the same music class as Sam and whose composing process suggests a complementary search for a more personal way of working.

6. FINDINGS PART 3: EMILY

6.1. EMILY AND COMPOSING

Over the course of this study, I came to know Emily as a capable and expressive musician, yet one for whom school music making imposed particular constraints on her expressive but private way of working. Throughout our discussions Emily's view of herself as a musician appeared to alternate between two contrasting images: firstly as a performer who presents music for the benefit of others and feels pressure to do so, then secondly as the artist who seems to hide away a more personal and expressive identity and who works for her own enjoyment. It is my intention that each of these aspects of her character and their complex interaction will emerge as we progress through the following sections.

6.1.1. Emily The Performer

Emily's river of experience, shown in Figure 6.1, reveals the importance of Emily's family life in relation to her musical identity and development. During our conversations, she describes her family as quite close although her brother and sister are at university in London and she now lives with her mother. Her grandmother, whom she calls 'Nan' has also featured significantly throughout Emily's life, particularly in relation to her music making. Aspects of Emily's musical identity that I came to know across our year working together will be presented through three roles I perceived through her descriptions of family life and which I saw resonating in her work at school: 'the pianist', 'the actor' and 'the performer'.

The pianist – fun and imposed

Emily's river of experience shows that she has several significant musical encounters, including singing, piano playing and family music making. She describes how her brother plays the guitar, her mum the clarinet and the piano and how her mum's siblings were all given lessons.

E: My brother plays the guitar. My mum played the clarinet and piano but she's not very good at piano. Well, my uncle plays a lot of things
P: OK
C: Violin piano and stuff. And my auntie plays piano. I think they were all given piano lessons but I don't think really my mum would like them. I don't know. I don't know. I don't think anyone else does and if I go on, I'll just be boring because that's just my family.

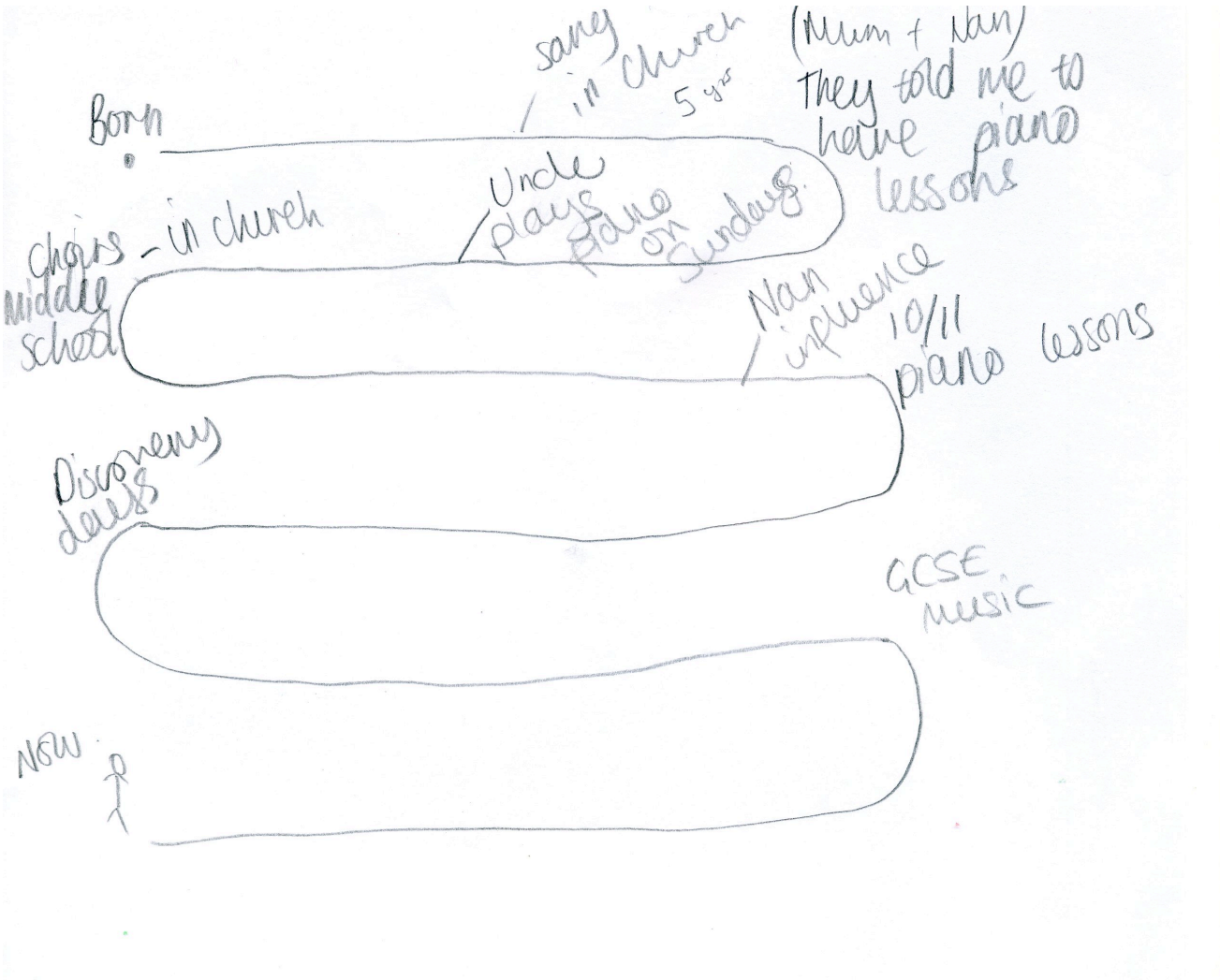

Figure 6.1: Emily's river of experience

I found the way in which she began her piano lessons particularly noteworthy. Emily's river of experience drawing shows that she was 'told to have piano lessons' by her mother and grandmother. She describes how this came about from experimenting on her grandmother's piano and explains how she has only recently started the lessons, having resisted them when she was younger.

E: I kind of think it's because no one really played it that much when people weren't there and it was just kind of sitting there. So I thought OK. But it wasn't that good or anything. I was just kind of like experimenting.

P: So when you say people didn't play it…

E: Well, apart from my uncle on Sundays at breakfast. You know, it's just having it in her house and she didn't really play it that much any more and I don't know. I don't know. I just thought I'd sit down and do something and **Mum said 'You should have piano lessons'**. So I've got piano lessons.

P: And so you did that time?

E: Yep.

P: OK. But you were saying previously people had told you to have piano lessons?

E: Well previously it was kind of like I really, really, really don't want to have piano lessons for some reason. I didn't and then after when I was about 10 or whatever I started to, like, take an interest in it.

Her statement 'Mum said you should have piano lessons' emphasised for me that she viewed these lessons as an imposition. Of course it is also possible that she voluntarily took up these lessons but perhaps later tired of them. Nevertheless, her view that these lessons were in some way forced on her highlights a distinction she seems to make between piano playing that is enjoyable and that which is not. Later in our discussion she describes the content of her lessons and again mentions that she previously had lessons that she did not want:

> E: I have piano lessons once a week that's just basically piano lessons I don't really compose or anything. I haven't taken any grade exams. I do enjoy it. I also had them when I was younger but I really didn't want to. But then I just kind of I always kind of, went to the piano and then I realised I did want to have them when I was older so that's why I started having them. I enjoy them. My piano teacher's nice. We kind of work through books and things and then, I dunno really, we just work through books. But not in a boring way. But in a fun way, and then you know all kind of like the scale stuff.

These discussions seem to underline Emily's assertion that her earlier experiences of piano playing were imposed on her against her will after she showed some interest. In addition they reveal that she sees her more recent positive experiences as fun and not boring. In seeming contrast, she adds, 'and then you know all kind of like the scale stuff'. Her articulation of early explorations that were followed by directed lessons seem to run in parallel with her experiences of fun lessons and 'scale stuff'. It looks as though a contrast is being drawn between fun piano playing, which involves exploring, and more conventional or technical piano playing that is imposed and involves 'scale stuff'. Adopting Emily's own language, for clarity I will use 'conventional' and 'artistic' to distinguish between these ideas. This is further discussed below.

The actor – being involved and the rules

A second aspect of Emily's music making, that her river of experience points toward, is that many of the aspects to which she introduces me relate to performance events. She notes singing in church, her uncle playing the piano on Sundays, singing with choirs in church, discovery days and GCSE music. A significant aspect of this appears to be her family's involvement in such performance events. For example, she refers to her 'uncle playing the piano on Sundays'. During our subsequent discussion, Emily goes on to tell me that her uncle plays the piano during family breakfasts on Sundays.

E: I hear him play the piano, not the violin, because he goes to my Nan's house and I go to my Nan's house every Sunday and there's a big piano there and **someone has to play it.**

P: Someone has to play?

E: Well, we all sit down and generally someone's at the piano, someone has to play the piano (laughs). Now everything I say sounds like its… Well, I don't know. Whenever I go there, it seems like I have to go to the piano because, you know, she lives there **I feel like I should give something back to her for going there.** I don't know. Just, we go there for breakfast on Sundays and then either I play it or if I don't, then he'll play something. Yeah. **But if none of us play anything then my mum will but very rarely because she doesn't really like playing the piano**.

P: It's either you, your uncle or your mum that will play?

E: Well my uncle's children who are triplets (laughs) could but they can't play piano because they're children and they don't really know what they're doing. So, yeah maybe them or **it's not like someone *has* to be at the piano, it just sort of generally happens** that someone just sits at the piano..

E: No one really listens, its just kind of background music.

P: OK so it's not like a formal thing, is it?

E: **It's not like a formal thing at all. It's just someone generally just goes to the piano.**

It seems that Emily's description of these events indicates that she feels an expectation that someone will perform. As Emily speaks about her experiences of these family events I come to understand an occasion where there is a tacit expectation that one of the family will contribute piano music to the proceedings. Her uncle, who seems to be the best pianist, will often perform. However, when he does not then Emily will also play. She also surmises that the reason she plays the piano is because she feels that she should give something back to her grandmother. If no one else is playing, then Emily's mother will contribute, although she prefers not to perform. Emily's description of her mother's reluctance to perform seems to confirm that there is a pressure on those in the family who are pianists to contribute. If indeed there is tacit pressure to provide music at such events, this may indicate why Emily's mother has been keen to encourage her to take piano lessons. It also provides a possible explanation of why Emily perceives her early piano lessons as being forced on her. Furthermore, it may explain why Emily has later chosen to take piano lessons as she has become more responsive to the expectation to perform successfully or with a certain degree of competence.

The notion of an expectation to perform is also supported by her description of the behaviour of her uncle's children, 'they don't really know what they are doing'. As a younger child Emily may not have been expected to perform well. However as she has grown older, the pressure to 'know what she was doing' may have increased. At the same time, it is also possible that providing music is an important opportunity to be a significant part of these family gatherings: to be one of the adults. This provides a strong motivation for Emily to spend time learning the piano. Thus Emily's participation in her family's

performance activities may stem from a desire to be successfully involved as well as experiencing external pressures to participate in the family tradition.

Yet Emily also seems to contradict herself, as she later says that there is no expectation that someone should play. It is difficult to explain this contradiction in terms of a lack of explicit awareness of the expectation to perform; she articulates the view that 'someone has to play it'. However, it may be the case that she is unwilling to reveal this expectation as starkly as she does at first. This could be because she sees this as 'not like as formal thing' and to Emily this seems to mean that it is fun and not imposed. If she were to see involvement as an expectation, this might mean that it would cease to be an enjoyable activity for her.

I have referred to Emily's role as that of an 'actor' to emphasise this external pressure to perform 'for others' and to reflect that the 'performance' seen by the family presents the ambiguous nature of the roles formal of 'conventional' pianist and 'artistic' pianist. For an actor there is the convention of a script to which they must adhere for the story to progress and they make it artistically their own during performance. So in a similar way, Emily may be adhering to the convention of a family performance, yet making it artistically her own by viewing it as her choice to 'give something back'. If this is the case, the activity may be transformed into something artistic and fun, even through it is imposed.

The performer – working with rhetoric

A final noteworthy aspect of the view that Emily presents to me of herself as a musician in her river of experience is highlighted by the difference between the density of events in her early years compared to her more recent music-making activities. She describes in some detail several early experiences of music making, yet as her discussion grows closer to the present, the experiences she offers grow fewer in number.

This would at first seem to suggest that she is now less involved with music or, at least, that there is now less variety in her music-making experiences. Yet if we carry forward the items that are still current at the time of her river of experience (uncle playing piano, Nan's influence, piano lessons and GCSE music), then four out of the eight apply. In addition we can add in her previously discussed involvement with family events and playing the piano at home (see 6.1.2) that are not illustrated in Figure 6.1. Thus rather then being less involved, she seems to be more involved in music making during the period of study than at any other time.

An alternative explanation for the change in the regularity of the experiences she presents may be found in the nature of her descriptions. In the previous section she appears to draw a distinction between conventional and artistic piano playing. At this point, she seems to

make the same distinction, but this time draws attention to those musical experiences that are more conventional, while neglecting to mention those which are perhaps more artistic.

We have previously seen that she perceives that her piano lessons as a young girl were imposed on her by her mother and grandmother. We have also noted the likelihood that her involvement with family performance events has arisen from pressure to participate in a family tradition. In each case these can be seen as conventional or even 'institutional' music-making activities. In addition, we see that Emily's descriptions of her early singing experiences are also conventional in nature, involving school choirs and singing at church. In the following excerpt she describes a choir setting in which members were auditioned. This suggests an expectation of quality as well as a degree of formality in the way the choir is managed.

> E: You know, we went to church and stuff and did senior choir for some reason where she auditioned people. We'd have to be in senior choir. We did a lot of church things, you know, for church. Like singing in church.

Thus we can interpret Emily's view of this as a conventional music-making experience. At the same time, I see her failure to depict her involvement with performances at family breakfasts as significant, especially as this turns out to be a key part of her regular music making. I also find it noteworthy that she fails to highlight her early experiences of experimenting on her grandmother's piano. Although it is unclear whether this is intentional, it is apparent that she does not include her more personal meaningful musical experiences in her articulation of her music making in this river of experience. Thus it seems that she is articulating more conventional experiences, whilst hiding those which are more artistic.

It is also possible that this trend has emerged as a result of Emily's view of my position as a researcher during this activity. Emily's articulation of more conventional experiences may arise from a mistaken belief that these are the activities I would be interested in, despite efforts to make it clear that this is not the case. It is also possible of course that she has merely forgotten to include the less formal experiences.

However, the likelihood that she is using specific experiences as a rhetorical device to present herself as a conventional musician is reinforced if we turn to her description of her music-listening habits. During an interview towards the end of the study Emily tells me affectionately about how her grandmother frequently plays records from her singing career:

E: I go round, I see my Nan like a lot, but she always plays me like the CDs of her singing cause she was like she was this (stops) I don't know. But she always plays with me and I just sort of I don't really care. It sounds horrible cause she's really nice but. I don't know. I was interested in singing before and I did all kind of choir stuff but, you know, I sometimes put singing to like the compositions. I do at home but it's not, it's more on the actual piano music than singing.
P: OK...what CDs are they?
E: CDs?
P: The CDs that she plays. What kind of stuff is it?
E: Oh! It's just from what she used to do. This isn't got anything to do with me, has it?
P: I'm just interested in the style of music?
E: Oh just like; really, really high. Really high..
P: OK! What opera?
E: Or something. I don't really know. I don't even understand something. It was just really high. I think she was in like the West End or something. She always, I feel bad now cause she always tells me about it and plays records and, not CDs, records

While the description may appear at first rather callous, Emily spoke with great fondness for her grandmother and this led me to realise she is trying to describe a grandmother who is keen to be involved in Emily's musical development. At the same time, her statement 'I don't really care' suggests that she is not really interested: this listening is not voluntary. So the picture emerges of Emily as someone who is fond of the grandmother who takes a keen interest in her music making. Yet Emily is less interested in the music her grandmother used to perform. It could be said that there is a mismatch between the willingness of both to engage with each other musically, and their capacity to do so due to having different musical interests. The degree to which Emily is willing or able to remember any details about the music lends support to the idea that she struggles to engage with it. I find this mismatch intriguing as one might assume that if her grandmother were aware that Emily was not interested in the music she was playing, her desire to be involved with Emily's musical development might lead her to play something else. At the same time, if we conjecture that Emily feigns an interest in her grandmother's music, perhaps to 'give something back' (see above), then this would perpetuate the situation.

Working forward from this notion, we turn to a discussion of her music-listening habits when she is at her own home.

E: I was going to say I don't listen to piano music. Well, I really like old music I like David Bowie. My friends are like, 'Why'? I don't know why. I think it's from my mum. I like The Doors. I like Blur (laughs). I have a really really odd taste in music. What do I listen to? Basically The Doors and David Bowie and Blur a lot. They're recycled around in my head.
P: And that's what your mum listens to as well is it?
E: Well, David Bowie and I think probably The Doors and Blur are from my brother and sister cause they're older than me. I like the Ramones a bit just because of them as well.

At this point I find a picture emerging of someone whose listening habits appear to be defined by others. Yet, when questioned further, Emily discloses that she also spends a significant amount of time listening to more modern popular music, with the stipulation that she is aware that this is not good music and she does not like it.

P: What was the last piece you listened to?
E: It was on the radio so it wasn't really anything I liked.
P: OK, do you listen to the radio quite a bit?
E: I listen to the radio in the mornings as I'm getting ready for school
P: Which station?
E: Radio 1. It's the easiest, erm, erm...
P: So you keep up to date with the charts?
E: If...not really. No I listen to chart music. It's on all the time so you kind of have to know. I get used to songs really easily so I kind of know them and so if its a really crap song then I'll know the words to it but it's not cause I like it it's just cause its always playing.

These excerpts take on a new significance in the light of the previous notion that Emily may have been trying to present a particular 'conventional' musical persona during her river of experience interview. If she has been trying to present herself to me in a particular way, then her discussion of her grandmother's career would serve to emphasise to me a 'conventional' professional family background. Moving on to Emily's discussion of the music she does listen to, she is describing individuals and groups that might appeal to me, being of an age between that of her siblings and mother. Then when questioned further, she distances herself from more modern popular music, yet acknowledges that she listens to it every day.

When considered rhetorically, however, these discussions may be a 'performance' of what Emily thinks I want to hear. Just as it may be that she 'performs' interest in her grandmother's music, it is possible that she is identifying me as a formally trained musician of a certain age who may think more modern popular music is not good music. For Emily this might match a stereotype of a music teacher or even a music education researcher from her local university. Thus it could be that Emily's description of her musical listening tells us more about her use of rhetoric to gain approval or success than it does about her actual listening habits. In the light of our previous discussion, it again appears as though she may be operating by drawing a distinction between conventional and artistic musical activity, this time perhaps to present a view of herself as a conventional musician.

The possibility that she is using rhetoric to direct my view of her listening habits is similar to the likelihood noted earlier that she is hiding her more recent meaningful experiences of music making by diverting attention towards more conventional experiences. If these conjectures are accurate, then by operating in this way, Emily is able to meet all the expectations that one could conjecture, she perceives from those around her:

- from her family: to play the piano and perform for the family;
- from her friends: to know the latest music;
- from the researcher: to tell me about music making like that which occurs in school.

Summary

Emily's river of experience suggests three key aspects to her music making: firstly, that she seems to draw a contrast between music making which is conventional, on the one hand, and 'artistic', on the other. Secondly, Emily's account of her involvement with performance events suggests that she negotiates a perceived tension between the convention of being involved and a desire to be artistic by transforming the situation into one in which she has a choice about how to participate. Finally, the way in which she presents different forms of music making suggests that she uses rhetoric to present a view of herself as a conventional musician. Having looked at Emily's music making outside school, we will now turn to her experiences of school music making in general and of composing in particular. We will see that her tendency to direct attention towards her conventional music making may be a strategy which allows her to divert attention away from a more personal and artistic aspect of her music making.

6.1.2. Emily's Compositions: Towards Artistic Expressions

In this section I will outline Emily's music making at home and school, with particular attention paid to the way she seems to hide a more artistic and expressive way of working from others. Her composing at home is described as 'freer', 'not like a formal thing' and 'just making up stuff', while she talks about composing at school as 'a bit boring and tedious'. We will look at these ideas under the following headings which describe aspects of Emily's experiences of creating music: 'the artist, 'the achiever' and 'the libertarian'. Together these point towards a broader notion of Emily's 'artistic' identity, which contrasts with the previously discussed notion of the performer. I will present how I came to see Emily as an artist who is exploratory, expressive, capable, independent and private.

The artist – making stuff up at home

The first aspect of Emily's composing process that reveals her artistic approach to music making is the time she spends exploring ideas on the piano. Initially it appears as though these may arise from her piano lessons. For example, she describes how her piano teacher sometimes encourages her to practise by adapting ideas from her lessons for use in her own pieces.

E: It's nothing much to say. Well, for piano **I really really like the lessons**. I don't actually make that much up, it's just kind of to help me with that particular kind of thing. Like if there's a particular thing or something, and then he'll just say, 'You know adapt it to your own kind of style or make something yourself in that style of music.' If I'm doing something around a certain section or something, he'll say, 'You can go off and make a short piece' or something. Not really like a piece not write a piece, but kind of if you want to, you can work around this piece and do what you want.

P: Can you give me a specific example?

E: Well, a jazz kind of thing. It was just a piece of music. I don't know what it's called. And then he kind of said **cause I liked the kind of feel of the music**, he said, '**If you want to make something similar up'**. So I kind of did.

From this discussion it seems that these exercises are voluntary, improvisational activities that arise from the pieces on which she is working on and which are part of lessons that she finds fun. While these are significant activities in that they illustrate how Emily is familiar with improvisational composing outside school, as with the 'performing' activities noted above they point to a more conventional approach to composing. Further, Emily goes on to say that her piano teacher gives her these instructions infrequently.

E: I'm saying it doesn't really happen that much... If there's a piece of music that I like and he thinks that I could work on, then he says, 'Why don't you give it a try.'

P: So in the last year how many times have you done that?

E: In the last year? Like twice or three times or something.

Due to the infrequency of these activities and the likelihood that these have been brought to my attention to divert me towards her more conventional music making, perhaps more significant are the composing activities she engages in which do not arise out of instructions from her piano teacher. During an interview Emily tells me how she often composes after school.

E: And then after school I generally kind of do piano either like lessons, like what I'm told to do or kind **of I always just tend to start making stuff up anyway.** Not really like masterpieces or anything but just I tend to do that. I make up kind of; I compose other things which aren't to do with my piano lessons if that's to do with this. They're not really for anyone. For my Nan, I suppose. Maybe my Nan would like to hear them.

It appears that Emily does not see these composing activities as connected to her piano lessons, although her comments suggest that they occupy the same space in her day. It is also notable that she states that they are not *for* anyone. This sits in contrast to her previous discussion of performing for her grandmother when her piano performances are for the family and even 'to give something back' (6.1.1). Due to the voluntary and contrasting nature of this form of composing, I came to think that this activity is for Emily 'artistic',

taking the word from her own description of her enjoyable work in music and art lessons at school:

> Well, music's an art… but you can use so many different kind of materials and study, loads of different paint and everything and you kind of **experiment** more and it is kind of much more a like a physical expression. Music is, I mean, it is totally but like a different way.

We know from Emily's river of experience that her composing at home first took place as experimenting on the piano as a young girl. After taking the piano lessons which she did not enjoy (above), she now attends lessons that she likes and which involve the same kind of experimenting that attracted her to playing the piano in the first place. Alongside this improvising that arises from her piano lessons, she also continues to experiment 'artistically' on the piano in her own time. Taken together, it appears from these discussions that Emily sees a distinction between two kinds of exploration activities: that on which she works on following suggestions from her piano instructor, which I am calling improvisation; and that which is less structured and is carried out on her own initiative, which I am calling exploration.

The achiever – conforming and achieving

Having presented a view of Emily's composing at home, we now turn to her work at school. From her examination results and school records it is clear that Emily achieves high results across all subjects in school, and the school recognises her good results by placing her on the gifted and talented list[99]. Yet while her school records and her involvement with the gifted and talented group outside lesson time suggest that she would be keen to be involved with arts activities in school, her own descriptions of these activities indicate that her school experience fails to live up to her expectations.

> E: Well, I go to expressive arts. When we got the letter, it said **your child has been recognised as talented or something in the arts** and we **were going to be able to experiment with like music and art** and drama and dance, and then choose to look further into like two of those. But we haven't done anything to do with any of that we just I don't understand what it's about, we just started making up plays and stuff, so, I mean that should have something to do with music but it doesn't at all.
> P: And you've just done drama?
> E: We've just done, yeah, we've just been making up plays and kind of dancing. **But not, you know, not properly**. Dancing kind of moves (moves hands). We went to see the Lion King, but again it was all focused on dance and drama, nothing to do with art or music.

From her account of the 'expressive arts' activity, I came to understand that she does not enjoy the activities and nor does she see them as 'proper'. Emily's attendance at these

[99] SD

activities is particularly interesting in light of the importance she places on experimentation in her music making at home and the lack of experimentation she perceives in the group. However, this perspective then presents an inconsistency; if her involvement with the group is voluntary, as suggested by its place outside lesson time and the invitation to join, then why does she continue to attend if she is not experimenting with all the arts, which is the reason she says that she first joined the group?

A possible explanation is that it is possible that however dubious her feeling about the artistic value of the group, the success and recognition it brings is nevertheless worthwhile. A further point of interest, which adds strength to this notion, is that Emily does not appear to involve herself in further extracurricular music making in school. This is illustrated by the following discussion.

P: Anything else? Do you play for shows or bands or orchestras choirs?
E: No!
P: OK! Do you sing in any of them?
E: Erm, no! (laughs)
P: No! OK! Just checking. So there's no other music making in school other than the lessons and the non-existent music that you do in the gifted and talented group?
E: (laughs) Yeah, that's about it.

There are of course many possible reasons for this contrasting lack of involvement. We can speculate that for Emily it is a consequence of the lack of independence these activities entail. When considered alongside her music making outside school, it is also possible that she lacks the opportunity to be involved in a way with which she feels comfortable; there are rarely any opportunities to join in as a pianist[100]. Furthermore, it is reasonable to assume that there is more tacit pressure to be involved with the expressive arts group because the head of the performing arts faculty runs it. Equally, however, it is possible that she chooses not to be involved with any other extracurricular groups because they are open to all and consequently participation in them does not hold the same status. This final interpretation adds weight to the idea that she may value the recognition which participation in an exclusive 'gifted and talented' group can bring.

Thus it seems that Emily chooses to endure both voluntary activities in school, despite seeing them as being 'too structured' and lacking in freedom. Furthermore, she achieves high enough results to be placed on a list of talented students and it is possible that she ascribes value to this recognition of her status. Taken together, it is possible that she tolerates her involvement with the gifted and talented group because of the status it brings.

[100] FN

The libertarian – experimentation and personal expression

A final aspect of Emily's music making that I came to understand from our conversations about school is the contrast she draws between composing activities in school, which afford her opportunities for personal expression on the one hand, and those which are and lacking in freedom, on the other.

> E: It's more kind of whatever you want to do rather than music. There's so many things. Cause it there's kind of like composing side of music and that's like **expression and 'zoom'** or whatever. And then there's all the other side of music which is all kind of theory stuff and just knowing a lot of stuff. Rather than the other side. Well, I did like it. I did used to enjoy it but I don't enjoy it as much as I did.
>
> I don't really know why. I think it's just cause there's so much work to do. We all **we have to learn all this stuff** about the baroque era. I'm not like appreciating it. I'm sure you know like there's nothing wrong, I don't know. I'm not trying to diss that but I don't really care **about baroque and classical and stuff**. It seems that we have no other stuff, which seems a bit stupid. It's not like I want it to be all composing, cause I don't, or all one side of things, like performing, but its, it is just it does get a bit boring and tedious. We have to learn all this stuff about like when you compose melodies. **She gives us a sheet and it's like use passing notes and you have to use passing notes, and you have to use auxiliary notes even if you don't want to.**

In this discussion Emily is talking about the two sides to music in school. She firstly introduces the composing side of music which she describes as 'expression and zoom'. It seems at this point she is describing an idea close to the previously discussed notion of artistic composing. She then appears to draw a distinction between this and composing involving 'just knowing a lot of stuff', which is directed either by the topics covered as part of the course (baroque of classical) or by teacher worksheets which she sees as providing little choice. The latter form of composing can be likened to the idea of conventional music making noted above. Thus it seems as though Emily holds a view of composing in school that relates to her experiences of music making at home: a tension between artistic and more conventional ways of working.

Exploring this notion further it seemed to me that Emily is describing a contrast between the content of the school music curriculum and her view of the arts in general. In the following discussion she reveals how she perceives a lack of freedom to experiment.

> E: I suppose you kind of have to do all the stuff on the curriculum so you have to play all of these pieces and record them and stuff. But… well, music's an art but its different from art and design of whatever it's called just art.
> P: In what way?
> E: I know it's not really what you're asking but [of art] you can use so many different kind of materials and study, loads of different paint and everything and you kind of **experiment** more and it is kind of much more a like a physical **expression**…**Music is like that but not in school because in school we kind of have to, you know, play a**

> **piece that someone else has written…**and then you have to record it, and then you have to do all these tests and, you know, hear all the ornaments and things.

In the above discussion Emily and I are talking about her experiences of art and music in school. It seems that she is trying to draw a distinction between art, which she sees as affording opportunities for experimentation and expression, and music, which she seems to experience as being more about conventions in the form of 'pieces', 'tests', ornaments' and 'things'. Her comments about 'a piece someone else has written' at this point and her mention of 'ornaments and things' is likely to be a reference to the worksheets on waltzes that she has completed during the course of the composing task. These worksheets review the devices and features of waltzes that would allow students to demonstrate the "characteristics of the style" necessary for them to access the higher end of the marks available in the marking criteria[101]. Thus it is likely that the contrast Emily is drawing at this point refers to being restricted to working within the boundaries defined by the worksheet. Notably, Emily describes a similar contrast between her composing at home and school.

> P: And yet you go home and compose at the piano, so explain to me the difference between what happens in school music lessons the way that you see it.
>
> E: It's just she seems to tell us what to do a bit too much I think. I know she has to. I know she has to cause its school but it just seems like it's a bit too kind of formal and kind of structured like. Yeah, I think it's just a bit too structured. Like, 'To do this, you have to do this, you have to learn this', rather than freeer.

It seems that Emily experiences composing at school as too directed, structured or perhaps 'institutional'. This sits in contrast to her composing at home, which is expressive, fun and 'artistic', involving exploration and choice. Thus, I came to see Emily's views of experimentation and personal expression as key aspects of her understanding of composing. Yet, while featuring as part of her composing process at home, she perceives that these are not always possible in her work at school.

Summary

Having introduced the Emily I came to know over the course of a year through working in her class at school and through conversations with her, I understood her as someone who experiences a tension between conventional and artistic music making. She enjoys composing at home in response to tasks set by her piano teacher and also by experimenting in her own time. Yet she finds artistic activities at school, whether voluntary or compulsory, too structured and restrictive. Emily seems to view experimentation and expression as central aspects of composing but with some awareness that this is not always possible in school. Nevertheless, in spite of this tension she continues to attain high results.

[101] ECV2.2, EWS 2.1

I came to see Emily as an artist working privately toward personal expression, often despite constraints, which she sees as conventions imposed on her by the context in which she works. We will now go on to examine her composing over the course of the current study.

6.2. EMILY'S COMPOSING STRATEGIES AND THEIR USE: THE PERFORMER AND THE ARTIST

In this section we will look at the composing strategies Emily employs across the study. As I worked with her I came to understand her work in school as that of a talented musician, who uses her piano skills and social position to perform a role of composing in the classroom. Alongside this I began to suspect that she uses this performance role to deflect attention away from a more private 'artistic' way of working, furthermore, that her performing approach leaves her space to hide and experiment in a way that ultimately reinforces both her success and her independent expression. Thus after I have presented the process by which I organised data relating to Emily's composing, I will move on to work through the strategies she articulates and, following this, present two further strategies that are visible in the data but which Emily did not explicitly articulate.

Organising the data

During 2009 Emily was a member of the same GCSE music class as Sam. Following the critical incident procedure outlined in Section 3.4 she identified four significant episodes:

- Waltz task: composing on the piano
- Waltz task: composing on the computer
- Waltz task: finishing her composition on the piano
- Personal task: working with the electric piano and computer

These incidents are verified through a review of the video data and discussion with the class teacher[102]. Yet it is evident from the documents and field notes[103] that Emily's composing process begins much earlier than the first critical incident she articulates. While this is discussed in more detail below, at this point it is enough to note that as a result of this unexpected finding, data from a further 'preliminary Phase' were analysed in addition to the critical incidents noted above. During my analysis across all these critical incidents, I come to see a story of someone for whom composing in the classroom is a process held in tension between herself as a performer who is eager to please and an artist whose more concealed composing process allows her to find personal expression and enjoyment in music making.

[102] VC2.3, 2.4, 2.6, EVSR2.1, EVSR2.3, 2.4, 2.6 FN6-7
[103] FN 2.1-2.3, ECV 2.1-2.4,

6.2.1. **Emily's Nine Strategies**

Having constructed a real-time diary of Emily's composing process, the data were firstly described using 924 discrete codes. As with the process of analysing Sam's composing, an iterative process of coding and reduction until saturation, employing deductive and inductive codes revealed five strategies: experimenting, recording, doing at home, not doing and problem solving. These are shown in Table 6.1 under the heading 'Articulated group' as they were explicitly noted by Emily.

However, having uncovered Emily's less explicit approach, I conducted a second and subsequent process of coding until saturation, that included lessons prior to the critical incidents she identified. This subsequent analysis revealed nine strategies: crafting, judging, recording, practising, preparing, time away, problem solving, laying the groundwork and exploring. These are referred to in Table 6.1 as 'Observed strategies' to emphasise that they arise from my reading of Emily's composing process rather than her explicit descriptions. Alongside these observed strategies are my definitions as well as a set of inductive codes, which are sub-categories of each strategy. Table 6.1 also maps the inductive codes to the five strategies which emerged from her self-selected critical incidents so that the discrepancy between her descriptions and my own interpretation are clear. Across the two Phases of my analysis of Emily's composing, four contrasting contexts of composing were also noted. These are further discussed in Section 6.2.3.

The nine 'observed' strategies which emerged from my analysis of Emily's self-selected incidents and the preceding work are used to structure the following discussion. This is for three reasons. Firstly, adopting this approach allows us to attend to all the strategies that were used across the study rather than just those which were articulated and part of her critical incidents. Secondly, together with the strategies which were hidden because of Emily's selection of critical incidents, there were also instances of strategy use during her critical incidents that were evident but not articulated. For reasons of transparency, I hope to highlight the agency of both Emily and the researcher by presenting this in terms of the researcher's framework and drawing attention to Emily's framework as we go. Thirdly, approaching the presentation in this way allows us to make subsequent comparisons between cases more easily. Each strategy is discussed in turn.

Articulated group	Observed group	Definition	Inductive codes	Observed Instances
Experi-menting	Crafting	A decision to change existing material into something more successful	Repeating	3
			Editing	89
			Deleting	83
	Judging	A decision to judge the success of an idea or ideas	Comparing	113
			Evaluating	118
	Recording	A decision to record new musical material	Improvising	4
			Re record	37
Recording			Playing in	83
	Practising	A decision to play existing musical material before recording	Performing to self	46
			Polishing the performance	180
Doing at home	Preparing	A decision to come to the lesson with substantial work already done	Work outside lessons	21
Not doing (what I was supposed to be doing)	Time away	A decision to spend lesson time away from the composition	Not doing what I was supposed to be doing	46
Problem solving	Problem solving	A decision to tackle a specific extra-musical difficulty being experienced	Adapting the task	54
			Technical problem solving	59
Not articulated	Laying the Groundwork		Planning	17
			Preparing the environment	185
			Remembering	11
			Rule breaking/bending	27
	Exploring	A decision to find a new idea	Playing keyboard to explore	25

Table 6.1: Emily's composing strategies.

Crafting

Crafting appears on 175 occasions across Emily's composing process and is defined as 'a decision to change existing material into something more successful'. This strategy falls within the group of strategies she articulates as experimenting. The following examples serve to illustrate that crafting is a more fine-grained description than 'experimenting'. She describes working on a section of melody after the school holiday:

P: You said you added a section and worked it out on paper. Go on, talk me through that.

E: OK! In A, which is minor, I just did the melody which is already that kind of I knew. And then I worked out another kind of bit in A, which was still minor and still in A; but another section of A. Then I kind of wandered into major, and then before I actually worked out any melodies and stuff for the major part, I went and wrote down like so I didn't forget it. Just like in A, the second bit of A then the bit in between. Then I worked and I wanted to have like two bits for the major bit and then an ending. I didn't really work out the ending. And then kind of, well, I kind, what I was going to go into but I…no I didn't actually make a melody up.

P: This is section b?

E: Erm, well, kind of. I suppose I had an idea in my head for a melody.

Then I think I must have made a bit of the melody at home and carried it on at school.

P: And then you're making these melody bits up, is this again sat in front of the piano?

E: Yeh! Well...I dunno. Just sort of playing the left hand and then kind of just experimenting and seeing what sounds nice.

From the dialogue above I understood that Emily was working with an existing idea. As the musical material she is working with was composed prior to this lesson, and she is changing it into something more successful: this instance of articulated experimenting is coded as 'editing', a form of crafting (see Table 6.1). This instance of crafting is also shown in Figure 6.2 which shows Emily recording in an accompaniment Figure on Track 2. Alongside this form of crafting are many occasions of deleting where an edited idea is recorded and then erased. For example, in Figure 6.3, 52 seconds after the screenshot in Figure 6.2 her previously edited idea is deleted.

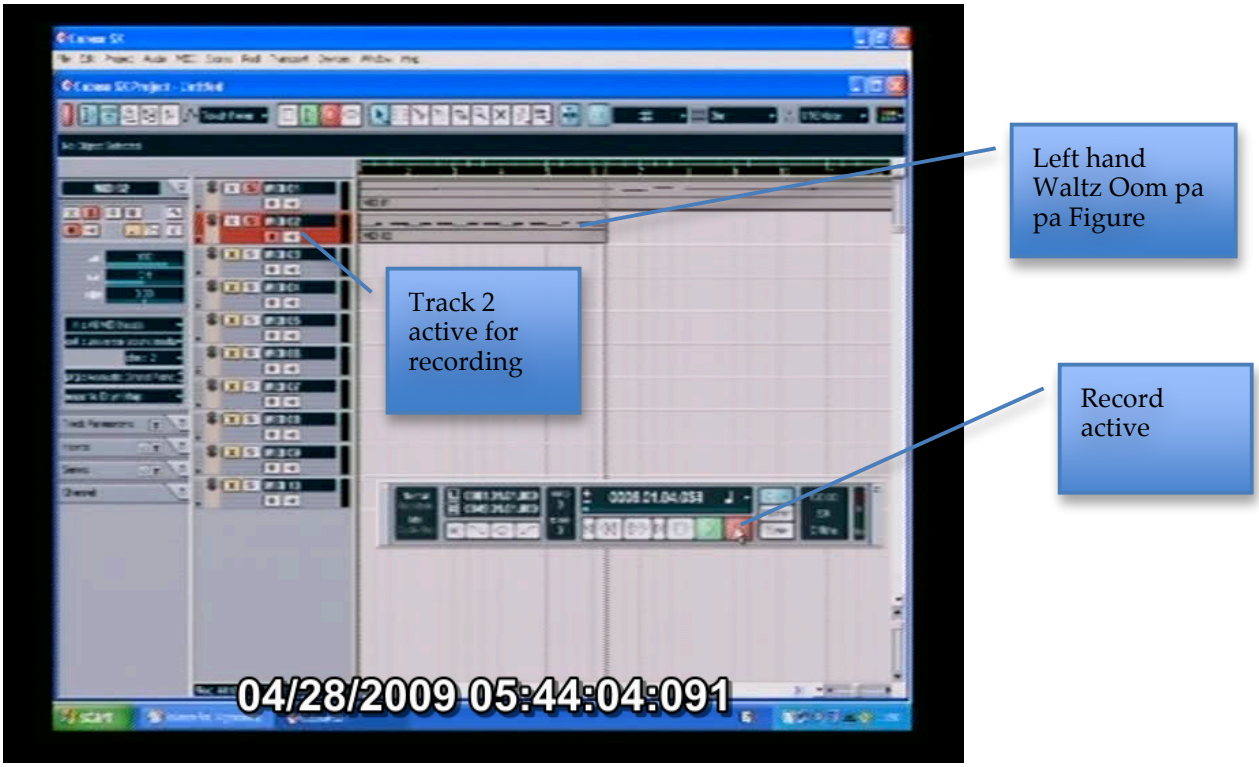

Figure 6.2: Recording left hand Oom Pa Pa Figure[104].

[104] ECV2.4

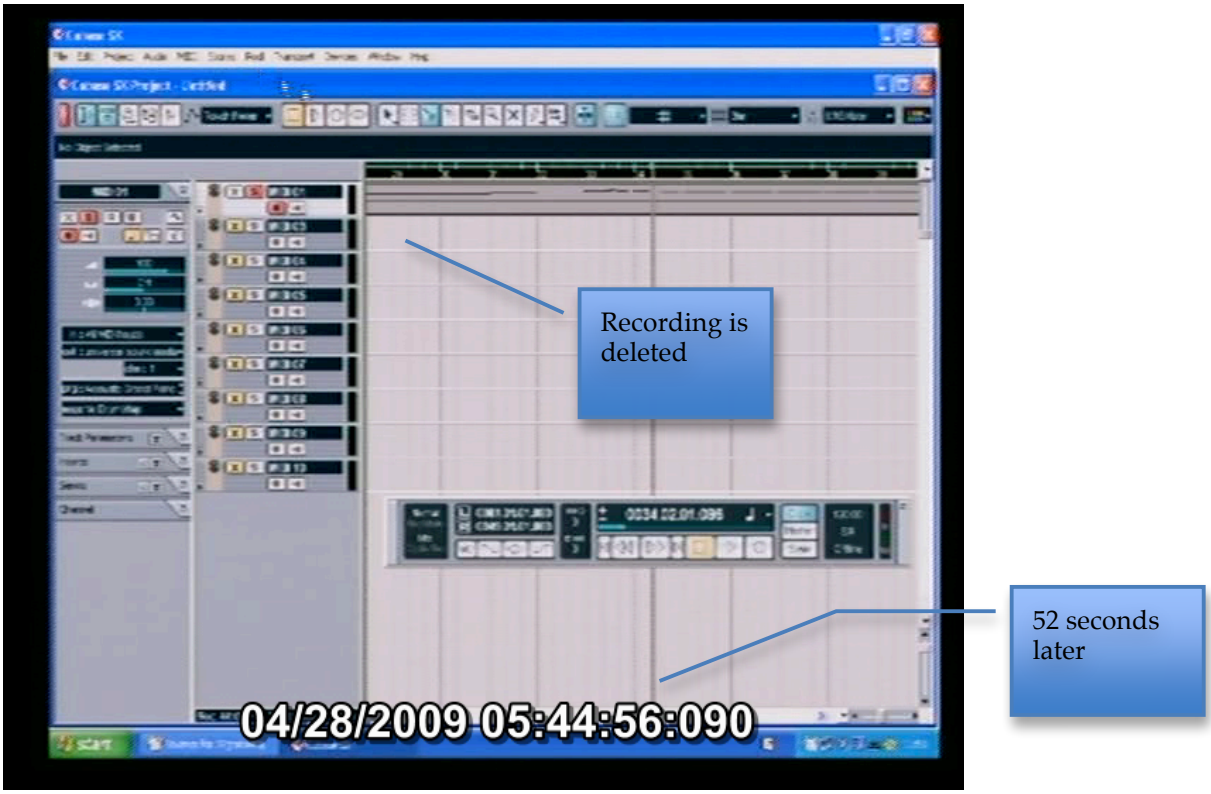

Figure 6.3: Deleting left hand Oom Pa Pa Figure[105].

In addition, there are instances when an idea is repeated. In each case the intention is to change existing material into something more successful, thus crafting involves repeating, editing and deleting. It is true that her approach to crafting is experimental in that she tries out different ideas. This is underlined by her articulation of this process as experimenting. Nevertheless, my understanding of the intention behind this strategy use is that it is to change existing material to improve the piece.

Judging

Judging is evident on 231 occasions across Emily's composing process and is defined as 'a decision to judge the success of an idea or ideas'. This strategy falls alongside crafting as a strategy that she articulates as experimenting. I have chosen judging as a description as I feel it more accurately reflects how Emily distinguishes between ideas, which is a more fine-grained description of her working process. A good example of judging is when Emily is making a decision about the success of an experimental transition from minor to major. This strategy is part of a broader section of work where she is trying to get the piece on the computer to match how it sounds when she plays the piano.

E: When we played...when I went through to like the C in the middle, you know, changing a bit, it was supposed to have both pedals on and then kind of get slower, and get louder

[105] ECV2.4

	and from here get like coming up; but I couldn't do that. And that was it. So it didn't really sound like much of a change because it was supposed to like be a massive change from the minor bit to the major bit. I was trying to...I don't know I was trying to do.
P:	Have you got that written down anywhere you kind of planned?
E:	No.

The discussion above suggested to me that Emily is trying to do something but is not quite able to articulate what she is trying to do. This incident occurs when, after a period of inactivity, she begins to record and re-record the same idea in different ways – this is shown in Figure 6.4. I understand this as an example of Emily trying to get an idea to work on the computer, that she has previously composed on the piano, by trying it out in different ways. Thus it is coded as 'judging by evaluating' as it involves different versions of the same idea. I have called this form of judging evaluating (see Table 6.1), as she is working with one idea rather than 'comparing'; which is judging *between* two ideas. Emily's description of this strategy as experimenting points to a broader concealed approach to improving her piece, which was noted earlier, and which will be discussed further below.

Recording

Drawing on the previous examples of crafting and judging, I consider that for Emily the strategy she articulates as experimenting is also closely linked with recording. Recording occurs on 124 discrete occasions across the composing lessons, which were selected from Emily's work across the study. This strategy is defined as 'a decision to record new musical material'. A further example can be seen at the start of Lesson 2.4 when she appears to describe taking many attempts to record it differently.

E:	Kind of well, a kind of outro. But it wasn't really. I don't think I'm going to use it but I made up one anyway. And I kind of rounded it off. And then today, as soon as I went in, I kind of went through it all just to make sure I knew it all.
P:	You mean played it on the computer? You played it on the keyboard, did you?
E:	Yeah! I played it on the keyboard. **And after a lot of attempts to record it like differently, you know, with the melody and everything, I just didn't do that. I** kind of played it all on one thing which I know you're not supposed to do.
P:	On one track?
E:	Yeah! You know it's just like I was just remembering it and practising it if that's OK?

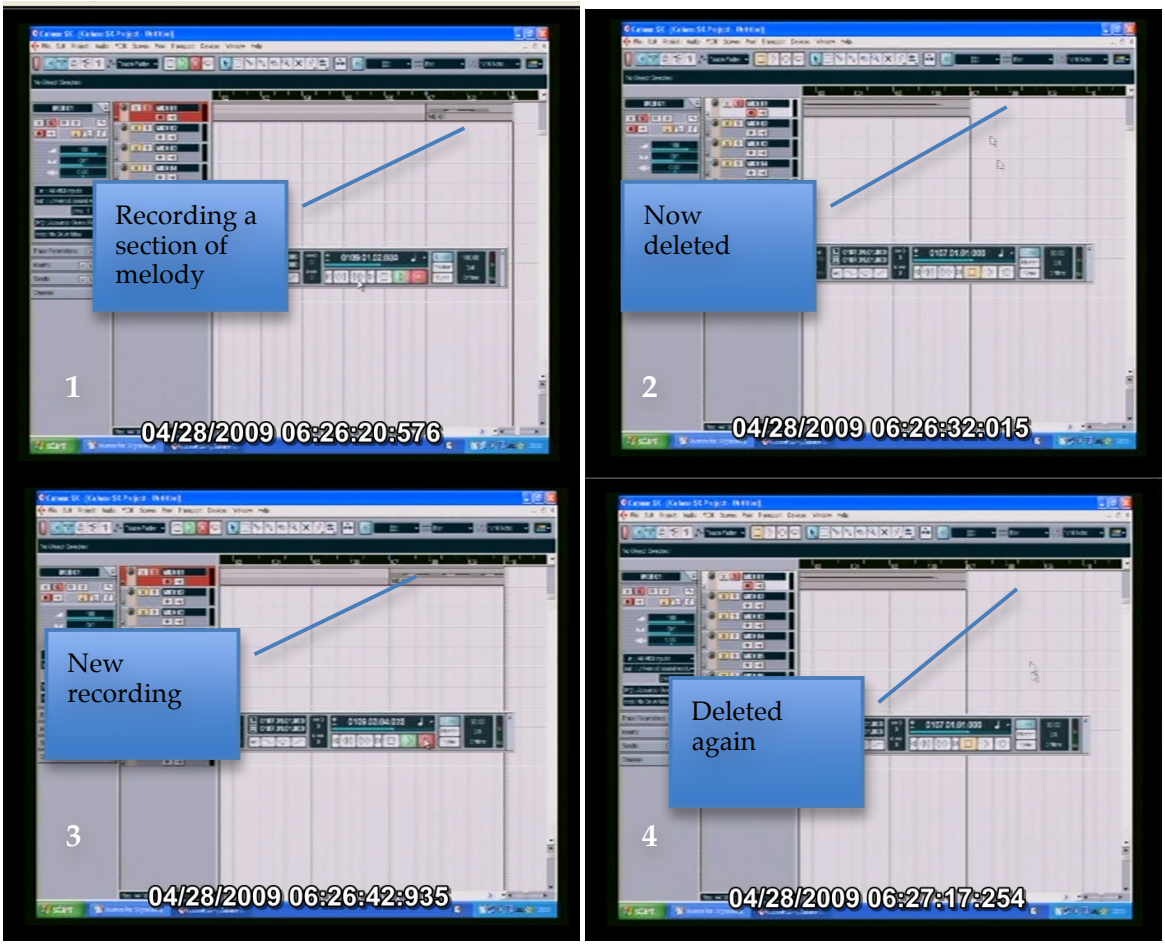

Figure 6.4: Judging by evaluating different versions of the same idea[106].

This description of the start of this lesson is verified in Figure 6.5 which illustrates many attempts to record the same material, all of which are ultimately deleted (image 6). Significantly, re-recording represents 37 of 124, or 30 per cent of her recordings. Alongside this, only four instances of recording appear to involve working with new material, while 83 instances concern material that has been used before or composed at home. This is discussed further below.

As well as Emily's description of experimenting that I came to see as recording, she also articulated recording as a discrete strategy. I view this form of recording as the transfer of ideas from working at home and onto the computers at school. For example, in the interview following Lesson 2.6 she seems to describe 'putting ideas into the computers'.

E:	Well I was kind of always doing it on the piano anyway sort of when I got to school I wanted to kind of hear it recorded. But it wasn't really happening that much so I thought it just was so much easier on the piano I practised it more on the piano I thought it would be better basically.
P:	When you say you were always doing it on the piano, what do you mean?
E:	Well, I mean obviously not at school but if I practise at home it

[106] ECV2.4 ref1

	would always be on the piano and it wouldn't basically…
P:	So when you were coming up with the ideas, for example?
E:	If I was coming up with ideas it was just kind of, I generally didn't make much new stuff up at school on the computers. I just sort of put it together and kind of work on it there. **I just come up with the ideas at home**.
P:	What is it that you did with them on the computers?
E:	Well, actually **I just kind of put them and see if they worked. If they didn't work, then I just,** I don't know. It's easier to kind of just sort of hear it back and hear all my ideas last week and stuff. It was easy to do that on the computer like taking stuff and put something. I didn't physically do it on like *Cubase* I like put like loads of stuff and like kept on saving it and things.

In the case of this strategy, the material Emily is recording has been composed previously and this is suggested by the level of complexity of the ideas being recorded. This is coded as playing in (see Table 6.1). For example, during the Lesson 2.6 Emily records a new variation of her B section. This is shown in Figure 6.6. The MIDI monitor score shown in Figure 6.7 verifies the level of complexity of the recording.

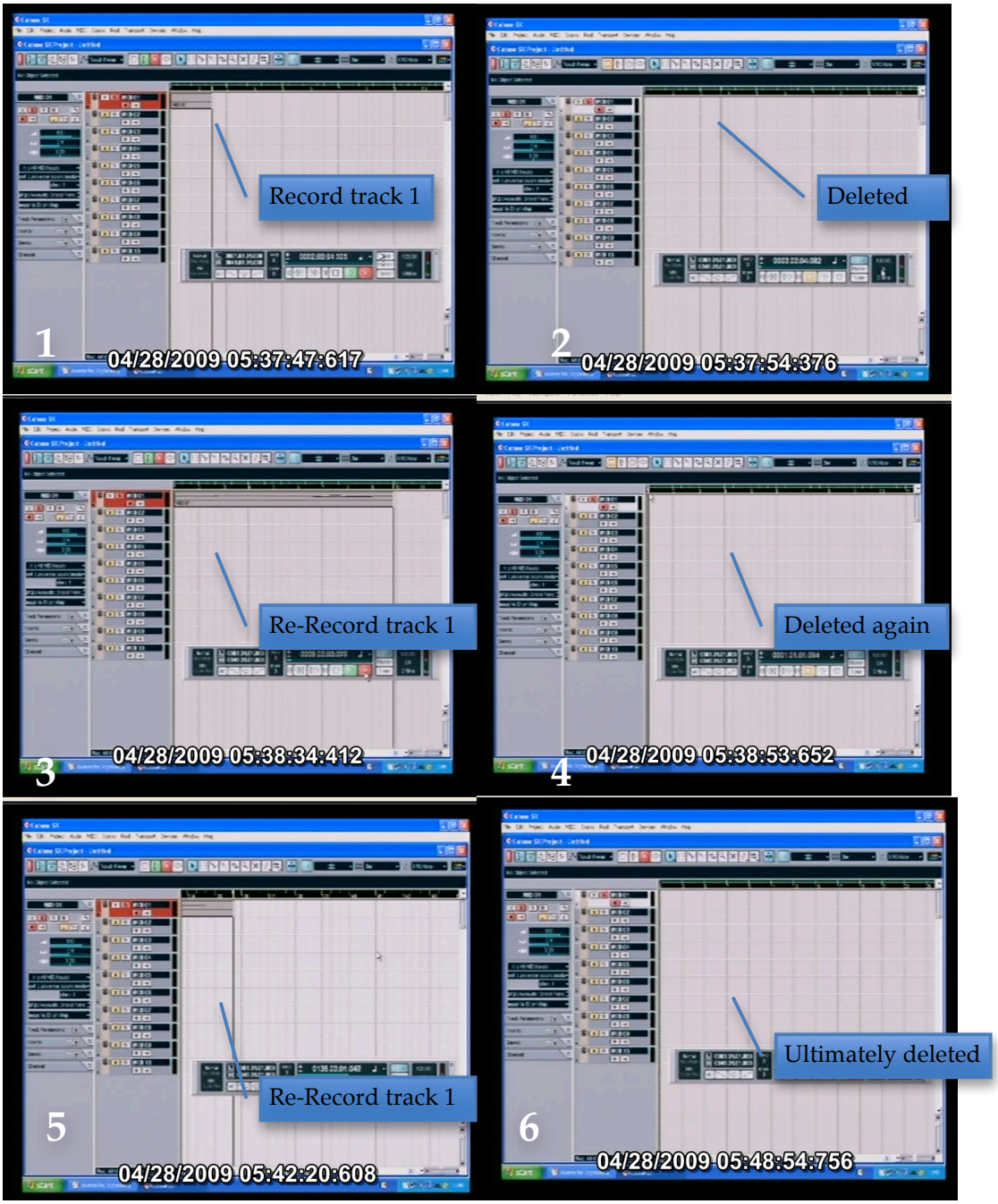

Figure 6.5: Experimenting and recording.

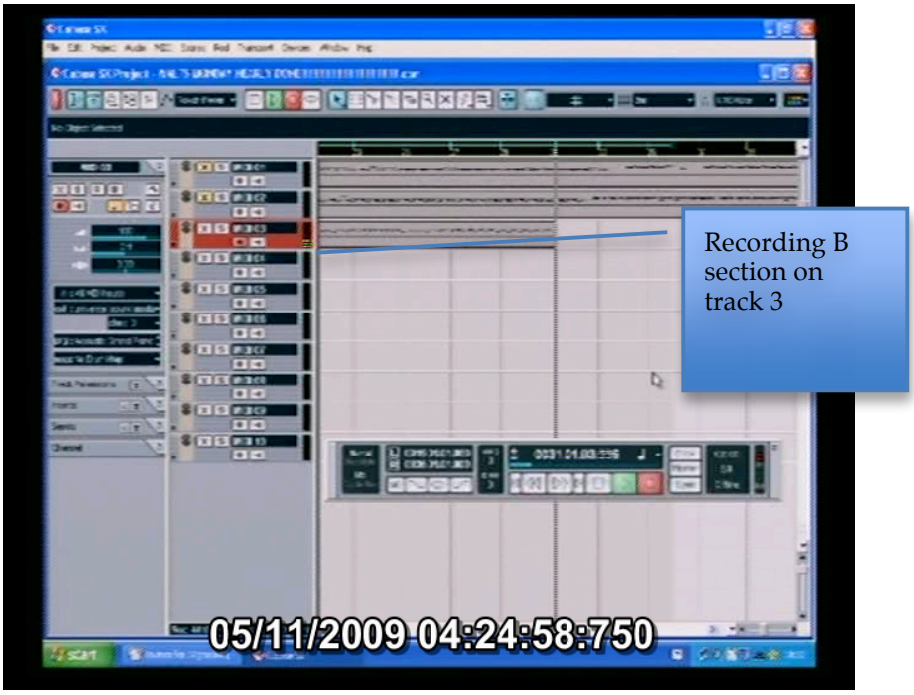

Figure 6.6: Playing in to record a new version of Emily's B section.

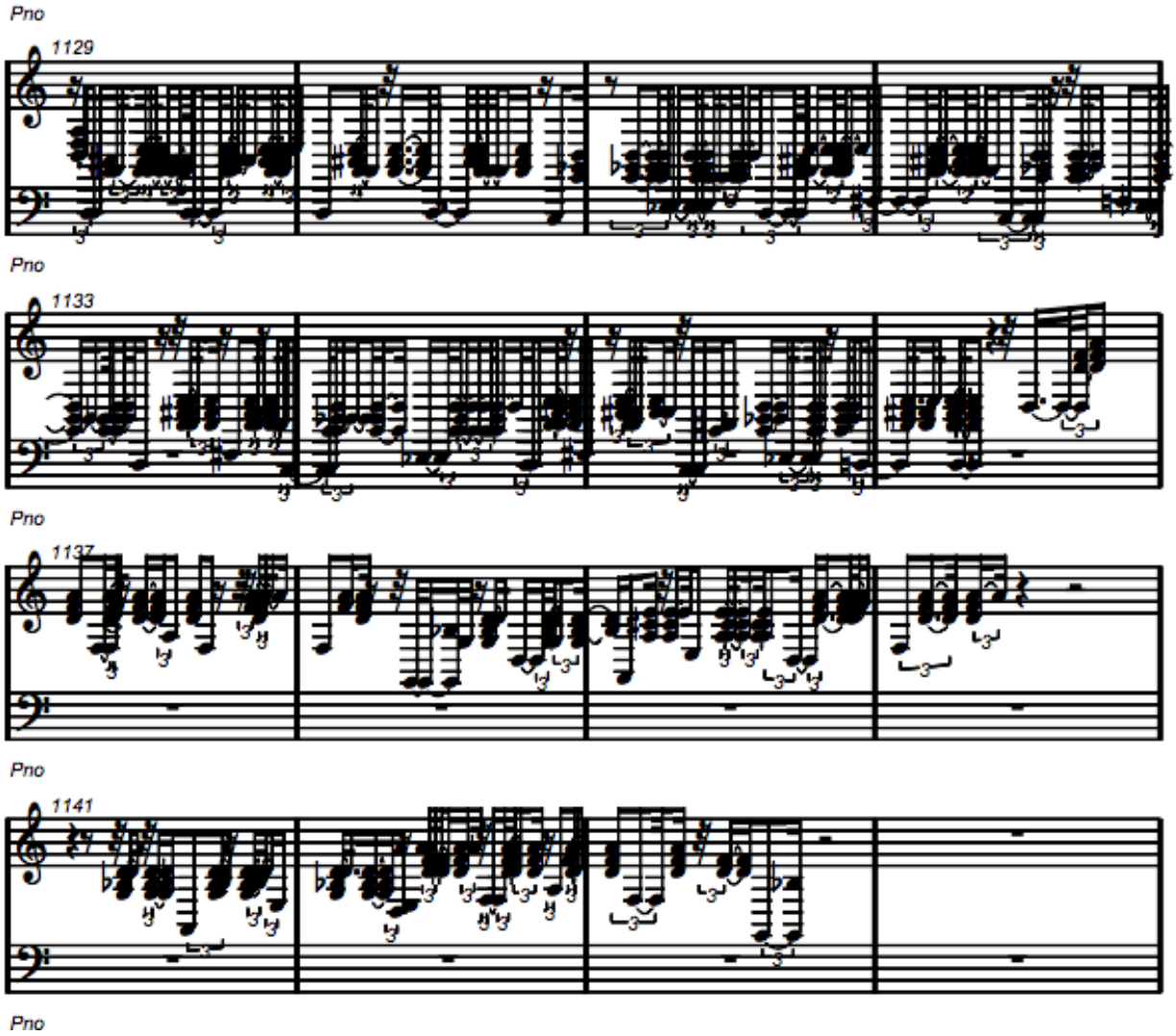

Figure 6.7: MIDI monitor score illustrating the complexity of Emily's recording.

Practising

A further, related strategy is that of practising. Practising is evident on 226 occasions across Emily's composing process and is defined as 'a decision to play existing musical material before recording'. Interestingly, Emily does not appear to draw a distinction between the act of recording new audio material and that of working with the computer keyboard. This is true both when playing her piece through and rehearsing sections of her piece before a performance for the computer. This is discussed further below.

The first example sees Emily playing her piece through in its entirety without stopping to record or rehearse any sections (Figure 6.8). This is an example of Emily practising by performing to herself, an inductive code which is seen on 46 occasions across the critical incidents. A second example of Emily practising is when she polishes a performance[107] by rehearsing specific sections. She discusses this in relation to working on a link section during Lesson 2.3.

P:	So this is now section?
E:	B
P:	And then you said there was a change from the minor to the major thing. Did you go back then to look at the change from A to B?
E:	Yeah! Well, when I was **recording,** it kind of well, it's kind of just cause it was a keyboard and I needed more octaves and kind of when I listened to it, it sort of didn't sound right. So I just **worked on** when I was going to **play it;** as in on the keyboard and how it was going to actually just to make sure it all linked, you know, kind of.

In this excerpt her use of the terms 'worked on' and 'play it' appear to describe an act that is working with the existing material, she calls 'B' before she goes on to recording it. She appears to view playing the material as part of a broader strategy of recording. This segment is also shown in Figure 6.9. There is a gap at the end of Section A and, while not recording, the green level meter on Track 1 shows MIDI activity taking place. This adds weight to the interpretation that the keyboard is being used to polish the performance ready for recording Section B into the gap. This type of practising strategy is evident 180 times across Emily's critical incidents.

[107] See table 6.1 for inductive codes

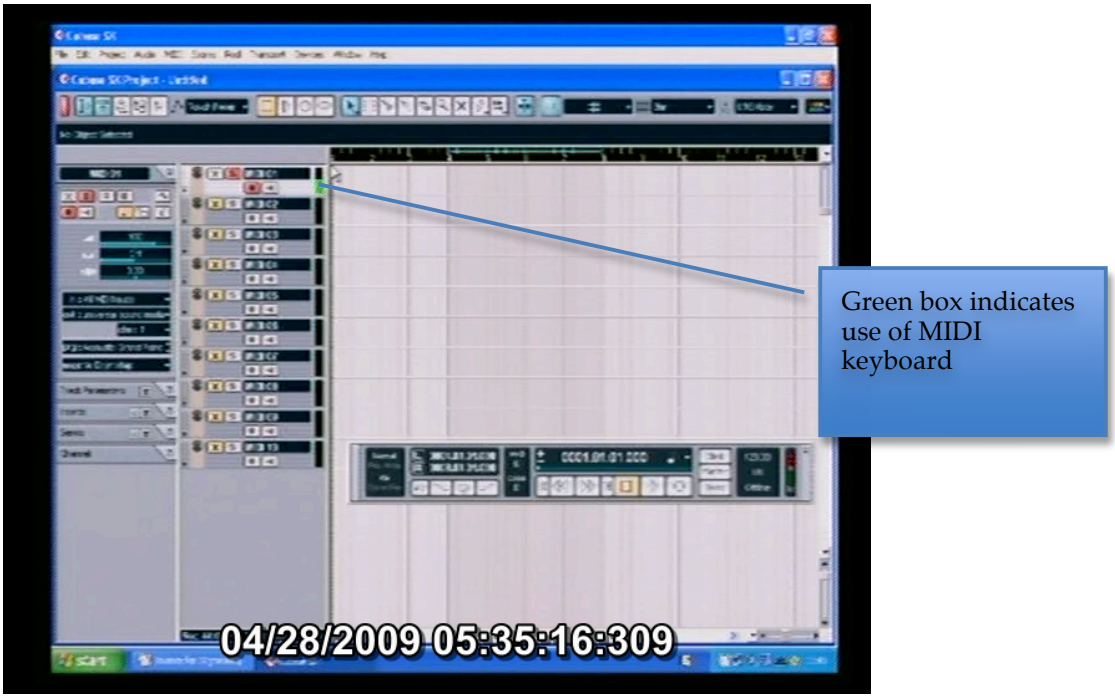

Figure 6.8: Practising: Emily performing to herself.

Figure 6.9: Polishing the performance.

Preparing

Emily's preparing strategy is evident on 21 occasions across her critical incidents. It is defined as 'a decision to come to the lesson with substantial work already done'. Emily calls this strategy 'doing at home'. During interview[108] Emily talks about her process of working on the waltz.

E:	The waltz…I couldn't do anything at school and I'd just be going over the things **I did at home.** But it wouldn't be the same so there was not really any point in doing any music in school.

[108] EIPF

Then in the interview following Lesson 2.4 she talks about her B Section melody

> E: Well **I suppose** I had an idea in my head for a melody. **I suppose!** And then **I think** I must have **made a bit of the melody up at home** and carried it on at school

Taken together these excerpts suggest that Emily uses ideas in school that have previously been prepared at home. A key aspect of this strategy is that on 9 of the 21 occasions when she appears to refer to this strategy, she is describing work that was not carried out during her critical incidents. The computer files saved throughout lessons 2.1 to 2.3 reveal that from the very outset Emily comes to the lesson with substantial work already done. Furthermore, over the next two lessons she builds up a repertoire of ideas with nine separate versions that together form the majority of the melodic ideas in her final composition. Figure 6.10 shows the main idea (red brackets) for Section A taken from her work during Lesson 2.1, while Figure 6.11 shows the Section B motif repeated twice, as in the final piece, as part of her work from Lesson 2.3. In each case these ideas are fully formed and are recorded towards the start of the lesson (12.52pm). Thus, following her pattern of working across other lessons, it is likely that this work has originated outside lessons and has been recorded after a brief rehearsal.

In the above excerpts, Emily's talk of 'going over things' to the lesson ideas previously composed supports the notion that the majority of her ideas are formed outside the lesson. Alongside this, her caveats of 'I suppose' and 'I think' in her descriptions of working outside lessons support the notion that she might wish some of this work to remain hidden. For this reason these 21 instances of preparation are potential indicators of a much larger process outside school into which we only have a small insight. Thus Emily's compositional ideas appear to have taken shape much earlier in the process than she reveals through her own descriptions of her composing process. This will be discussed further in Section 6.2.2.

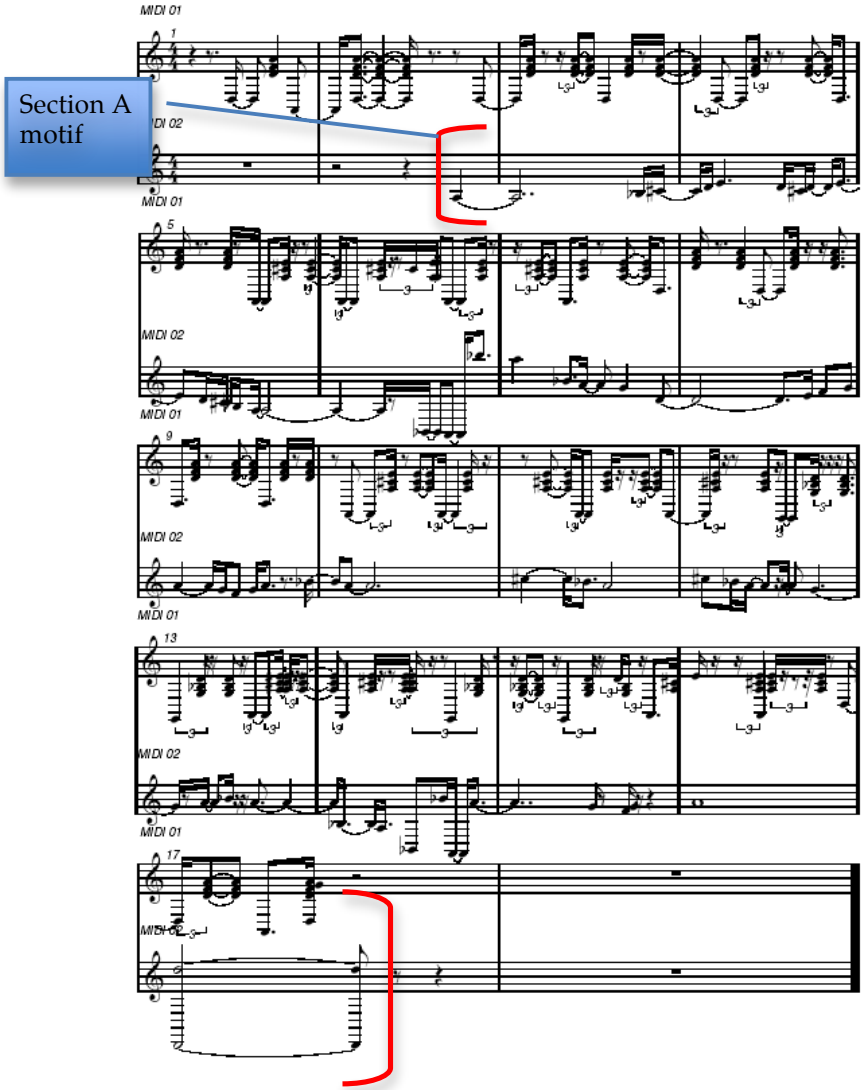

Figure 6.10: Section A visible in 'Sad waltz' from Lesson 2.1

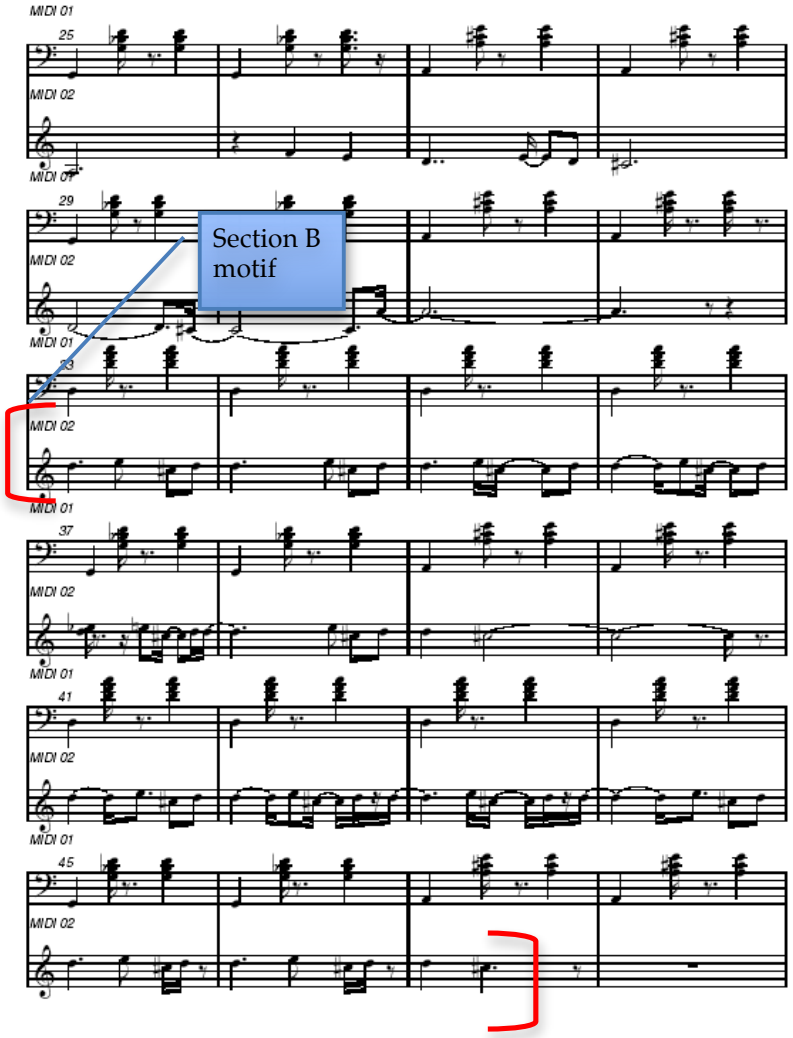

Figure 6.11: Section B visible in 'waltz A' from Lesson 2.3

Time away

Time away is a strategy seen on 46 occasions across Emily's composing process. It is defined as 'a decision to spend lesson time away from the composition'. Emily calls this strategy 'not doing' as she describes how she spends time working on things she is not supposed to be working on. In the excerpt below, Emily is discussing her process of composing during the final task and appears to view this as a problem.

P:	What problems did you have this time?
E:	Keeping to what I was supposed to do. Not like I was rebelling. I mean keeping to, kind of, making sure it would fit into a musical.

While Emily spends time working on ideas that relate to the composing task she is working on, the above discussion supports the notion that she also spends a significant amount of lesson time on other things. This notion is supported further by her description of composing during Lesson 2.3:

E:	So last music lesson. No, wait, did we have a music lesson last week?
P:	Yes, you had a lesson. It was Mrs B was in the main room. Mrs W was working in the other room and all four of you together were working on those computers.
E:	Erm. Yeah! OK! **I don't think I did anything in that lesson**. OK all right. Right that's when you were working in the practice room? Yeah! Erm! **I didn't do anything** there and then I went home and made up a intro.

Emily appears to view this lesson as time away from composing, 'I didn't do anything'. Yet there is an interesting inconsistency in Emily's description of these events as during her time of 'not doing what she was supposed to' at this point she records the Section B (Waltz A) as well as recording Kite waltz (Figure 6.12) and Waltz B (see Figure 6.13). This can be accounted for if, as mentioned earlier, this is not new material being recorded but work that has been written previously at home. If this were the case, then her statement 'I don't think I did anything' can be taken to mean that she has not added any new ideas to her composition. Nevertheless, during the lesson there are times when activities and discussion take place that are not clearly related to composing.

Time away between lessons were not included in the coding as these were not decisions to take time away from composing but occurred as a result of the structure of the timetable.

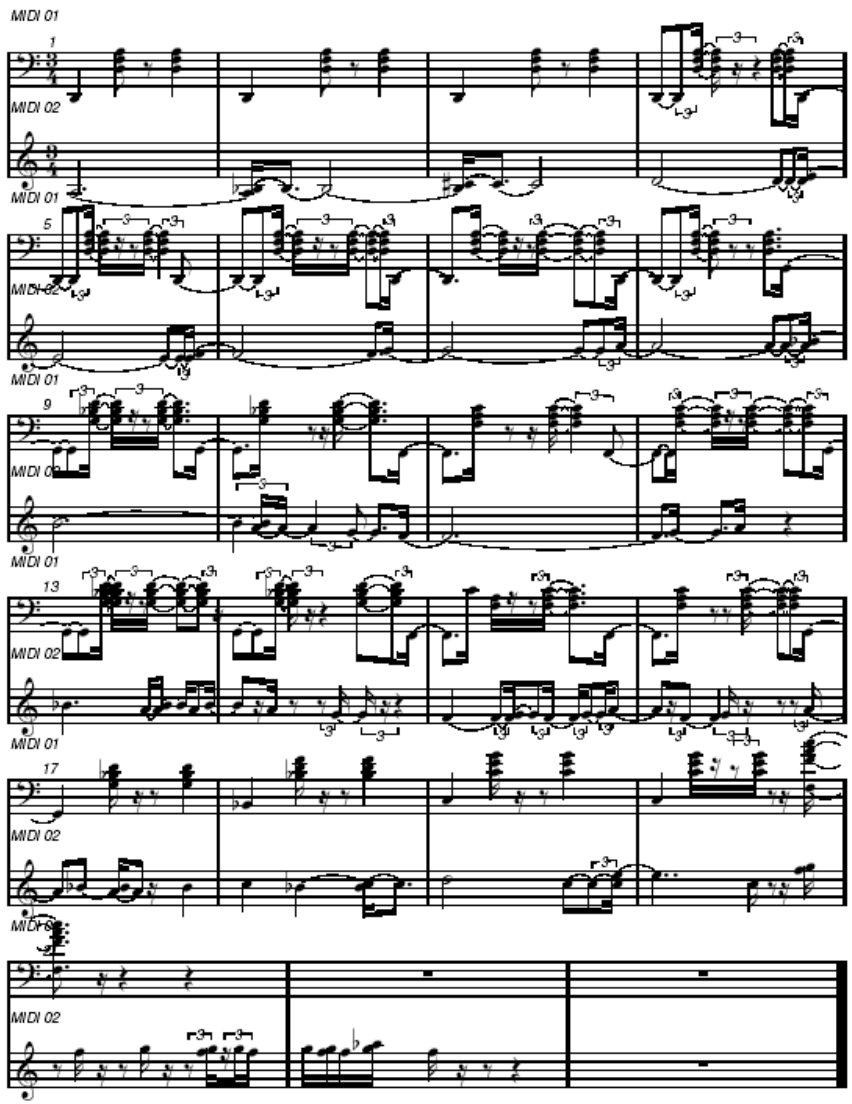

Figure 6.12: Kite Waltz Lesson 2.3.

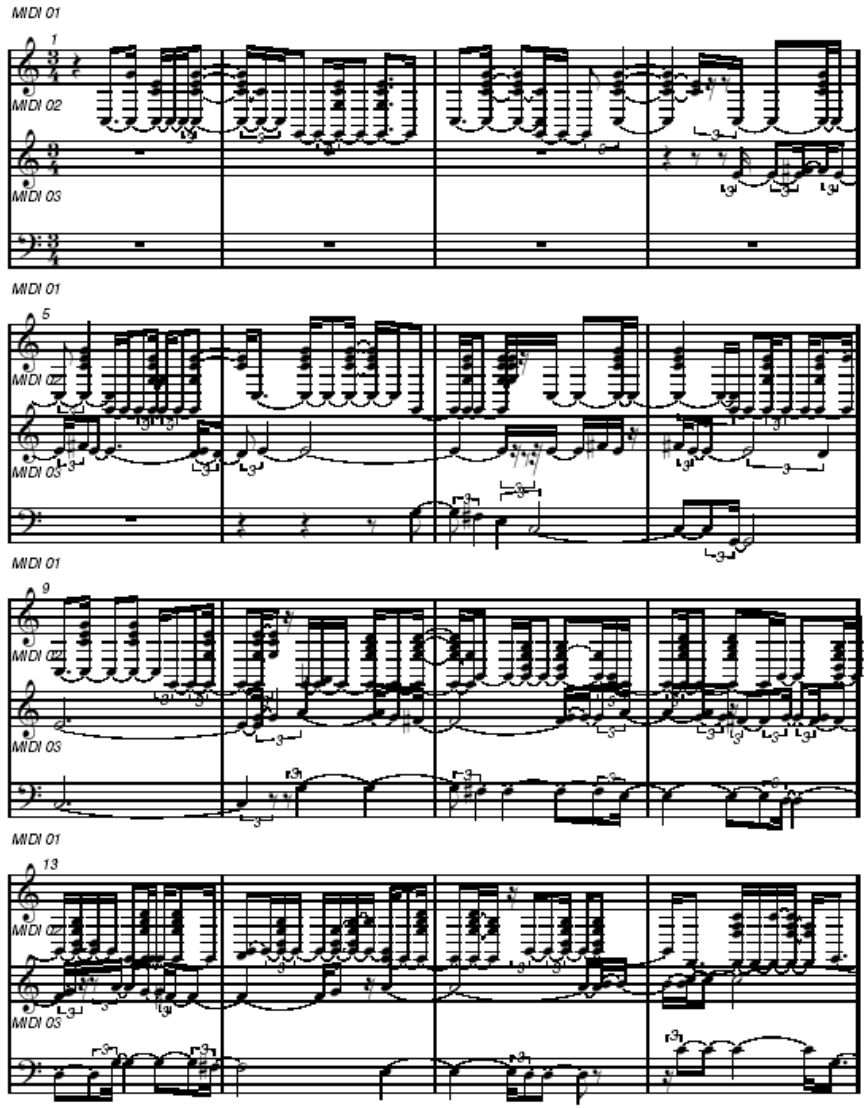

Figure 6.13: Waltz B Lesson 2.3.

Problem solving

Problem solving is evident on 113 discrete occasions across Emily's critical incidents and is defined as 'a decision to tackle a specific extra-musical difficulty'. Problem solving is the final composing strategy that Emily describes. In the example below she is explaining that the MIDI keyboard she is working on in Lesson 2.4 does not contain pedals or enough keys to play the piece she has been working on at home.

E:	When I listened to it, it sort of didn't sound right. So I just worked on when I was going to play it, as in on the keyboard, and how it was going to actually just to make sure it all linked you know. Cause it had to have a link A and B. I needed to make sure it did. Basically I just couldn't, it was supposed, well, I was supposed to use pedals. And it was supposed to be in a different octave. But I couldn't. And that's probably part of the reason why it didn't sound very good.
P:	OK! So explain what was supposed to happen.
E:	Well, it wasn't so much like changing in octaves from changing to sections. But it was more, it was supposed to be quite far apart, left hand and right hand.

Although Emily never calls this process problem solving, she later seems to describe[109] the process of finding a solution to the issue, 'it didn't sound very good on *Cubase'*.

P:	Were you clear about the idea that you wanted it on piano or the computer or did you think that you had to do it on the computer or did you think that you had to do it on the computer or...?
E:	I was doing it on the piano (nods). I just kind of assumed I could and then nearer the time I thought oh dear! So I asked her and they said, 'Yes,' so it was fine. She said, 'If you want to record it live, then you can'. So it was fine. I kind of always didn't want to do it, like show it on *Cubase* cause it just (shakes head) didn't sound very nice.

Thus, while not explicitly called 'problem solving' by Emily I consider this to be a strategy that she reveals. Figure 6.14 shows the score from her MIDI activity on the keyboard at this point. It supports the idea that she experiences difficulty in playing her piece due to its limited range. In addition the field notes verify that there are no sustain pedals available on the MIDI keyboards and that the range of the keyboard is only four octaves. The requirement for a wide range of notes and a sustain pedal are verified by Emily's final performance (Appendix 8). Her decision to solve this problem by working towards a performance on the piano creates a second difficulty because the parameters of the task are such that it has to be recorded on the computer[110]. Thus, as well as her attempts to solve non-musical problems regarding the technology, Emily also solves problems relating to the composing task. Her description of this process (above) indicates that she speaks to

[109] EVSR2.6
[110] EIPF

her teacher to get permission to modify the task and performs it on the piano. Her performance on the piano is verified in the field notes:

> Emily performed her waltz composition on the piano. After practising in 'the dungeon' she recorded using Audacity and a microphone in L20. After several false starts she recorded all the way through with 1 interruption.[111]

It should be noted that Emily only asks her teacher about modifying the task parameters several weeks into the composing task and after she has already assumed that she can. This indicates that she has a keen awareness of the tacit rules of her regular teacher aside from the explicit ones of the student teacher. This will be discussed further in Section 6.3.

Two further strategies are evident in Emily's composing process that she does not articulate and which nevertheless seem to form a substantial part of her composing process. These are laying the groundwork and exploring. These will be discussed in turn.

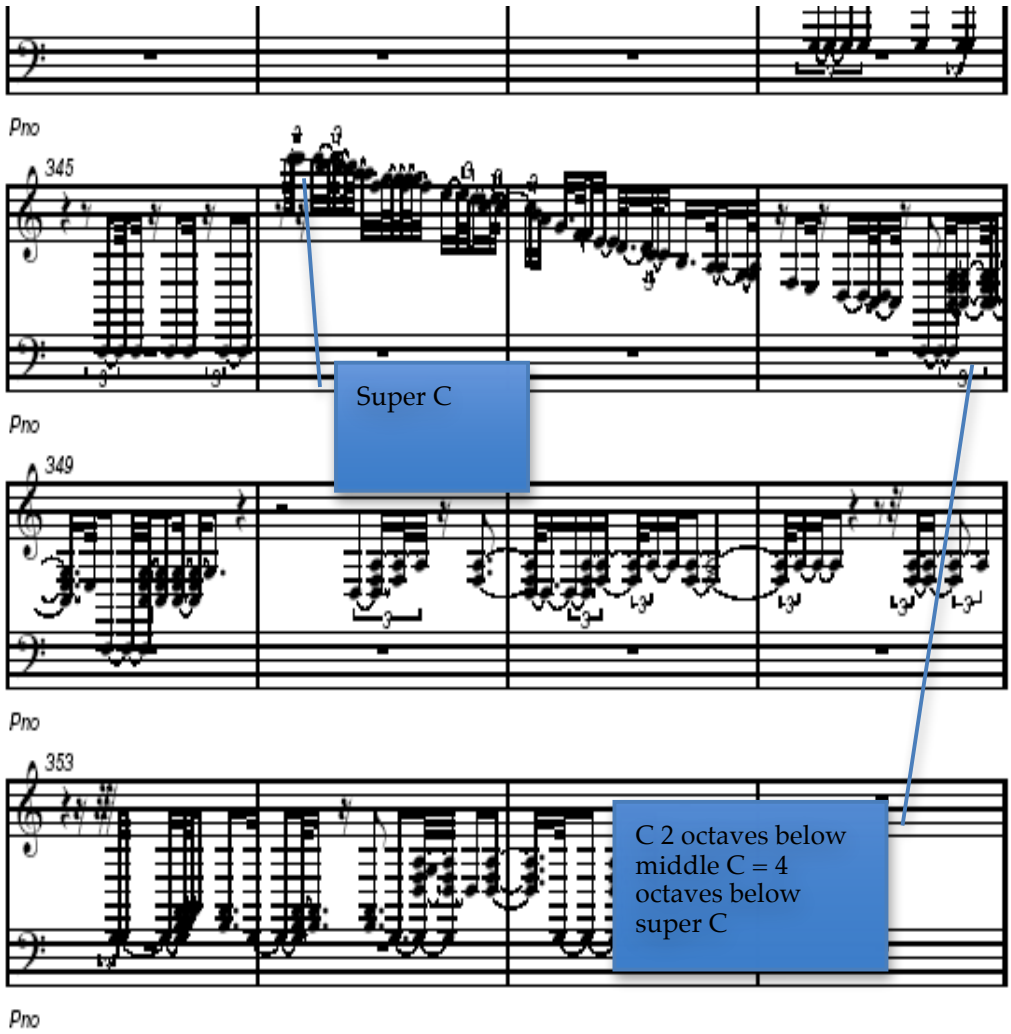

Figure 6.14: Introduction idea constrained by the range of the keyboard.

[111] FN 2.7

Laying the groundwork

Laying the groundwork appears on 240 occasions across her composing process. It is related to problem solving, being defined as a decision to tackle a specific extra-musical difficulty which is being experienced. However, as previously mentioned, laying the groundwork strategies are not articulated by Emily.

The most common form of laying the groundwork is preparing the environment. This was coded 185 times and includes starting the computer software, testing the MIDI keyboard and moving the mouse around the computer screen. For example, during Lesson 2.6 she sets up the sounds on *Cubase* and then tests the keyboard. Figure 6.15 shows her setting up the sound in the *Cubase* dialogue. This interpretation of her work at this point is supported by the class video, which shows her hand on the computer mouse (Figure 6.16). A further example of laying the groundwork is demonstrated by Emily's use of the piano in the school practice rooms, previously mentioned above. As she uses this resource over time, it is likely that she is demonstrating to her class teacher the need for her to use the piano rather than the computer for her composition. This is discussed further in Section 6.3 where we consider her negotiating the task with her class teacher and other students.

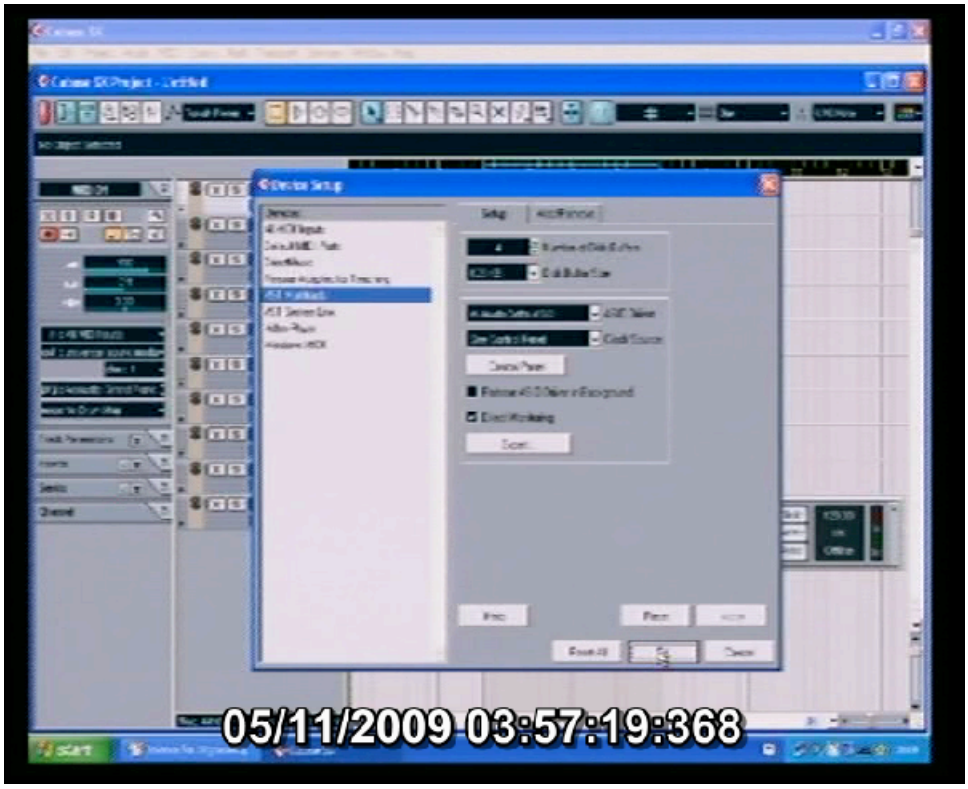

Figure 6.15: Setting up *Cubase* sounds.

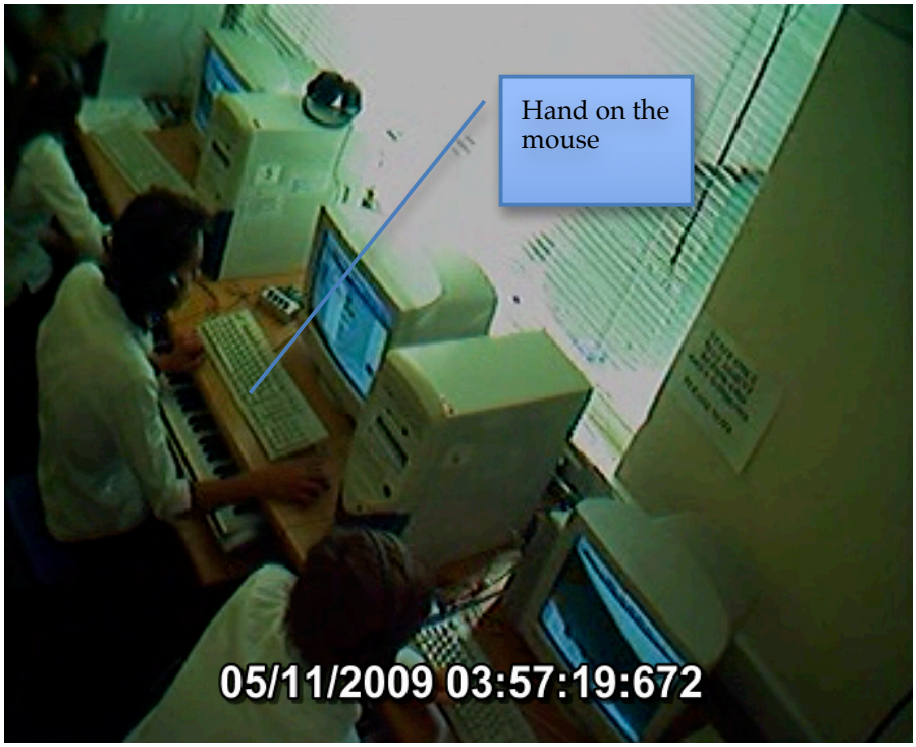

Figure 6.16: Hand on mouse verifies working on the sounds.

Exploring

A final strategy that appears in Emily's composing process, but which is not articulated, is that of exploring. I have defined exploring as 'a decision to find a new idea'. This occurs on surprisingly few occasions, however, it was visible 25 times across her composing process. For example, during Lesson 2.6 she finds a new idea for an accompaniment Figure and then a further idea for a melody to go above this. This idea later becomes the ending section of her piece. Figure 6.17 shows the idea being recorded, while Figure 6.18 verifies Emily's use of the keyboard at this point. Figure 6.19 is the MIDI score of what was recorded, supporting my interpretation that these notes form the ending motif. It should be noted that in addition to the exploring which is visible during Emily's critical incidents, it is likely that there is exploring which occurs at home and which is therefore not evident in the data.

The reasons for Emily's lack of discussion about this strategy are unclear. However, we can speculate that this is part of her attempt to hide away certain aspects of her composing process, which is discussed further below. Equally, however, it is also possible that her lack of articulation is due to the circumstances of most of her exploration being at home.

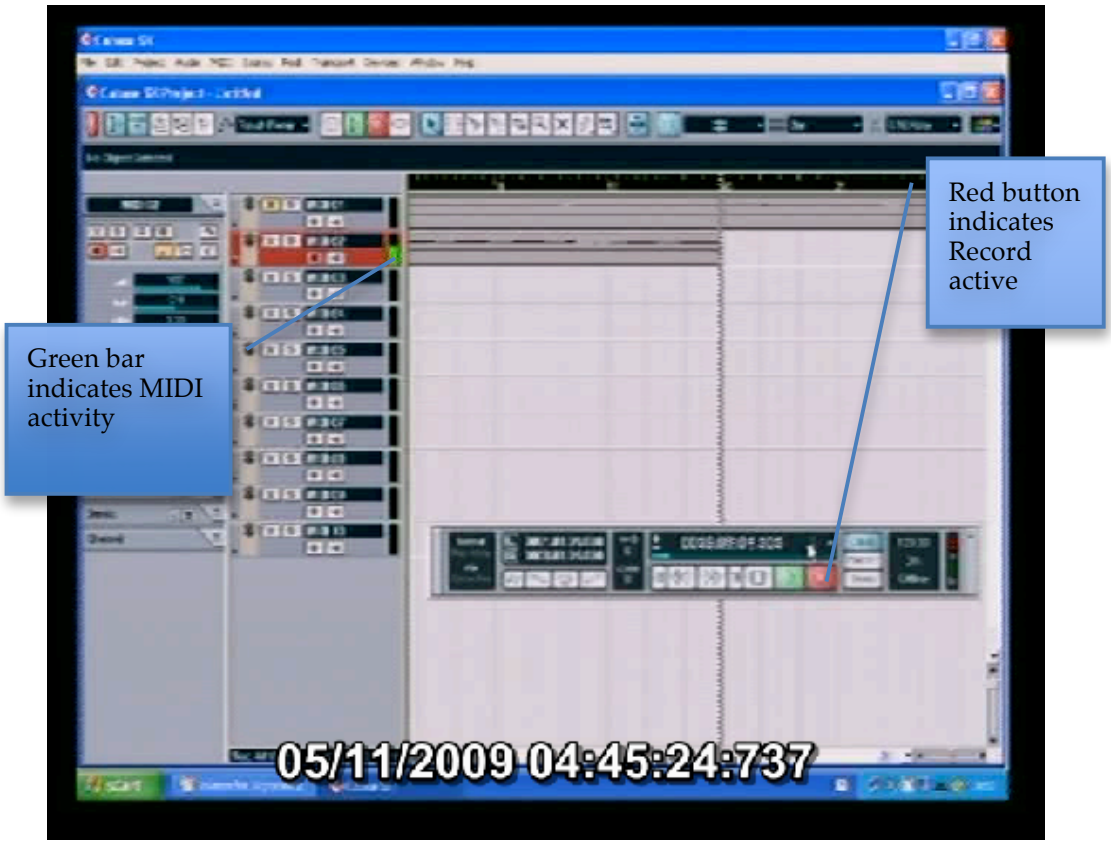

Figure 6.17: Exploring by playing the keyboard.

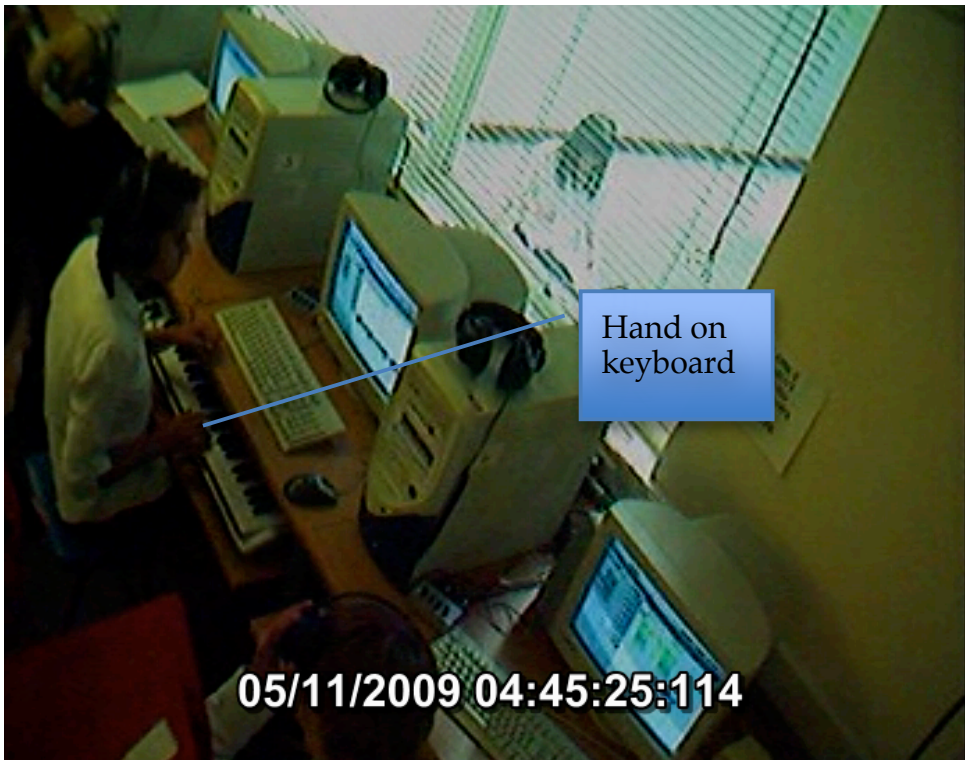

Figure 6.18: Emily's hand on the keyboard verifying playing at 4:45:25.

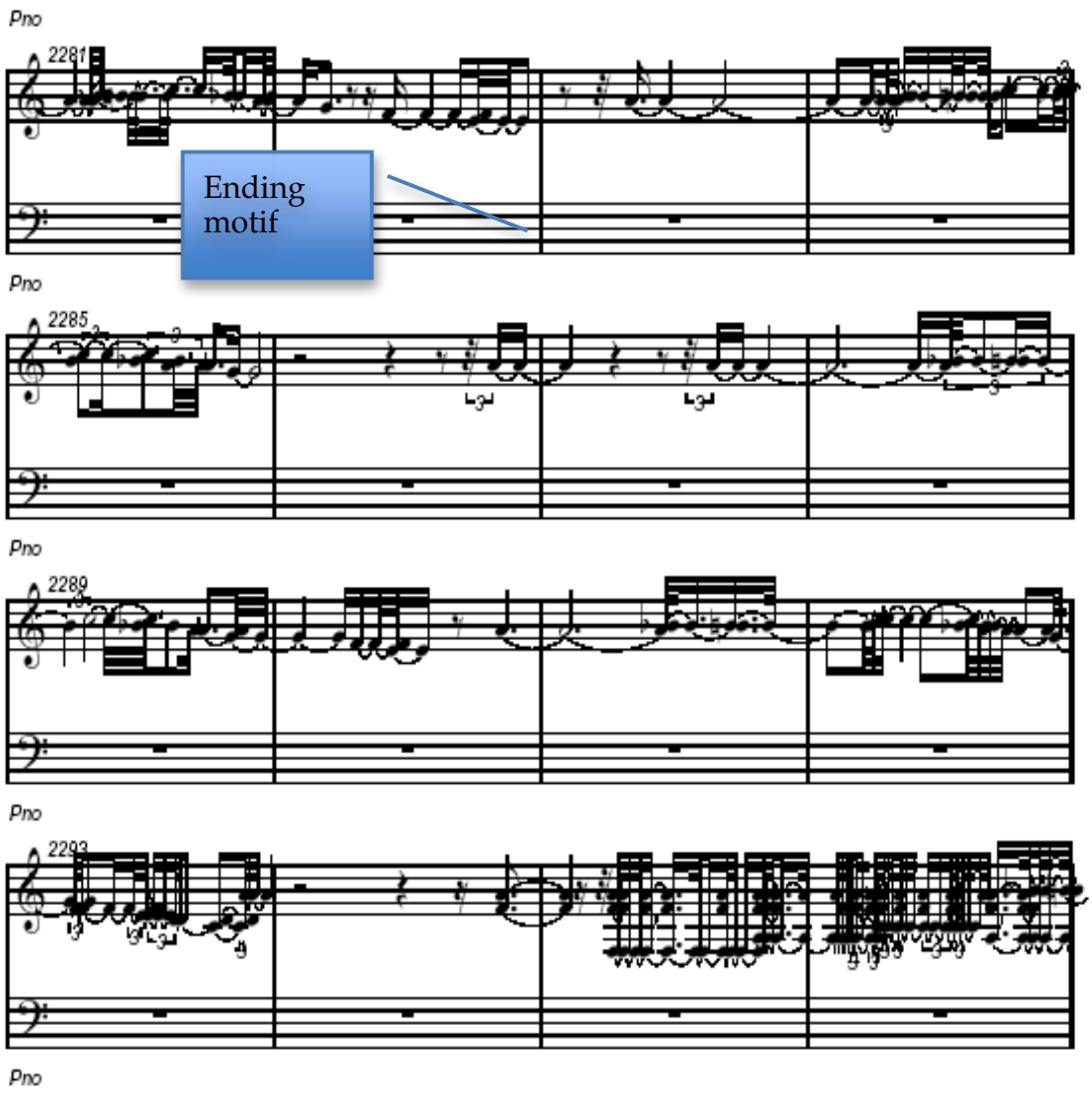

Figure 6.19: MIDI score verifies ending motif.

Summary

Emily's composing process can be described in terms of nine different strategies: crafting, judging, recording, practising, preparing, time away, problem solving, laying the groundwork and exploring. Yet, of these nine strategies, Emily does not articulate 'laying the groundwork' and 'exploring' in any way. In addition, she describes crafting, judging and recording strategies as 'experimenting', and recording and practicing strategies as 'recording'. We will now look in more detail at this difference in articulation as we examine patterns in Emily's strategy use.

6.2.2. **Patterns Of Strategy Use**

We have seen that Emily's composing process can be defined through her use of nine qualitatively different strategies. We have also noted that Emily does not highlight two of these nine strategies during discussions of her composing process. Furthermore, we have seen that six of the remaining seven strategies are named in a way which at first seems to conflict with their use. It may be that this indicates lack of understanding, poor use of musical terminology, careless description or even a disingenuous approach to the research. However, during analysis two broad patterns of strategy use emerge, which supports the interpretation that the character of Emily's descriptions are a product of two meta-approaches which define her experiences of composing: experimenting to compose and performing to conform. I have not included a discussion of this aspect in my earlier discussion of Sam's composing process as he does not speak about his strategy use in a way which contrasts so strongly with my own. Thus, patterns emerging from his strategy use are addressed in the course of the discussion of his process over time. However, at this juncture - for Emily - each meta-approach will be discussed in turn.

Experimenting to compose

In the previous section we noted that Emily refers to crafting, judging and some recording strategies as 'experimenting'. If we investigate her articulation of 'experimenting' further, we can see that it frequently entails work within cyclical patterns of recording, crafting and judging. For example, during Lesson 2.6 Emily is experimenting with ideas for her waltz's melody. She describes the process:

> I was coming up with new ideas. I generally didn't make much stuff up new at school. I just sort of put it together and kind of work on it there. Well, I just kind of put them in to see if they worked and if they didn't work then I just…I don't know, it's easier to kind of just hear it back. I like put loads of stuff and kept saving it and things.

Figure 6.20 shows a timeline of a section of the lesson with the codes for crafting (pink), judging (blue) and recording (orange) highlighted alongside a visual representation of the audio file (dark orange). The illustration shows that the instances of each strategy occur either during the same segment of working (parallel lines) or immediately following a related 'exploring' strategy. At point A in the process she is recording her melody for the very end of the piece. This is shown in Figure 6.21. At the same time, she is doing this by changing existing material into something that will now work as an ending melody, a form of variation. Immediately following this work, she listens back to her recording (point B). Then a second recording is made to further improve on her previous work .

Experimenting by crafting, judging and recording happens on many occasions throughout Emily's composing activities and follows a pattern similar to this example. Thus it seems that in her use of 'experimenting' to describe crafting, judging and recording activities she is chunking these strategies together into a single activity. 'Experimenting' appears to be Emily's word for moving the composition forward. For this reason we have called this meta-approach 'experimenting to compose'. We now move on to look at the second of her meta-approaches: performing to conform.

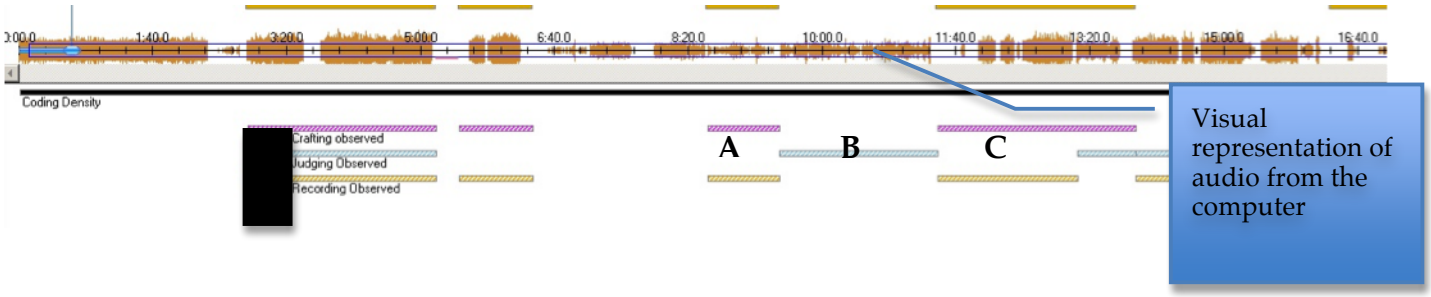

Figure 6.20: Timeline of Emily's use of crafting, judging and recording.

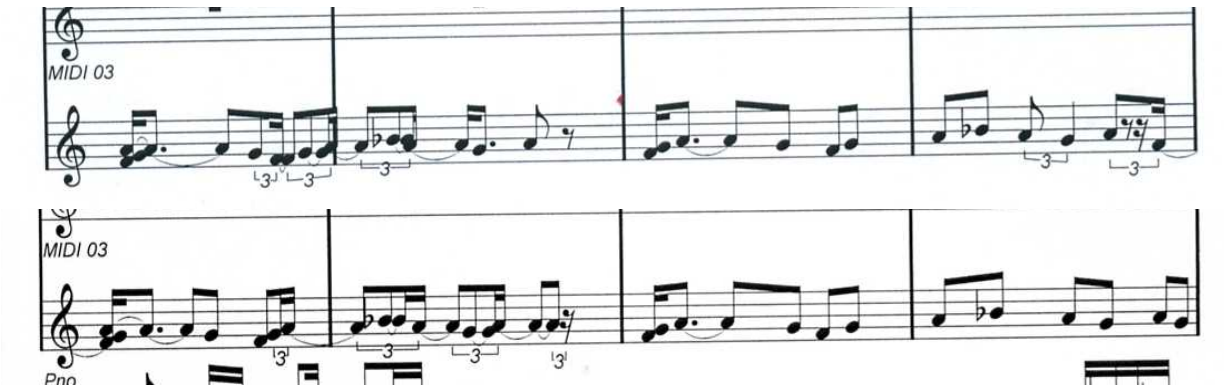

Figure 6.21: Melody idea from Lesson 2.6.

Performing to conform to compose

Alongside her approach of experimenting to compose appears to be a second and equally significant way of working that involves performing and conforming to the expectations of her teacher and peers. In the previous section I suggested that Emily uses 'recording' when she employs both recording and practising strategies. Significantly, however, of these 309 'recording' strategies 226 or 73 per cent are practising rather than recording. In other words nearly ¾ of her 'recording' activities do not directly involve the input of new music into the computer but entail her playing existing musical material. While this may merely be due to inaccurate descriptions, there also exists the possibility that she is emphasising the task she is supposed to be doing, while at the same time she is using the time to work in a different way: 'non-recording' or 'practising'. Weight is added to the latter interpretation if we turn to her description of the start of the composing process during a later interview.

E:	Well, I was kind of always doing it on the piano …I kind of had an idea, I wanted it to be like strong at the beginning and then sort of have a complete contrast in the second bit.
P:	Were you clear about the idea that you wanted it on piano?
E:	I was doing it on the piano (nods)…I kind of always didn't want to do it like show it on *Cubase* 'cause it just (shakes head) didn't sound very nice.

During this discussion Emily makes it clear that she does not want to do it using the computer (*Cubase*), but instead is working on the piano. Alongside this, however, the teacher's worksheet and instructions (4.5) given during the early stages of the task make it clear that the task is to be completed initially on the worksheet and subsequently handed in for assessment in digital format. It is possible that this may be a misunderstanding on the part of Emily, but it also adds credence to the notion that she is 'performing' a role of compliance, whilst actually working on the piano in breach of the task parameters.

A further point of support for the idea that Emily is performing the role of conforming to the teacher's expectations comes from her use of 'preparing' strategies. We have seen that on 21 occasions Emily comes to her lessons with work already completed. Indeed during interview she makes clear reference to the idea that most of her work is completed at home.

> When I got to school I wanted to hear it recorded but it wasn't really happening that much so I thought it just was so much easier on the piano. I prasticed it more on the piano. If I practised at home, it would always be on the piano. If I was coming up with ideas, I generally didn't make up new stuff at school on the computers. I'd just come up with the ideas at home. Yeah.

This discussion suggests that Emily sees her work at home as both the origin of her ideas and the place where she practises on the piano. Yet this work outside lessons is not part of the composing task. Furthermore, as examination coursework the completion of this task within lesson time, while not being against the assessment guidelines, certainly adds significance to the classroom-based nature of the work. Thus Emily may have strong reasons to emphasise her conforming strategy of 'recording' rather than 'practising', which might draw attention to her work outside the classroom.

A further significant aspect of this view is that, by working in this way, Emily can resolve what may be seen as a tension between maintaining her status as 'gifted and talented' and finding personal expression through exploratory activities, which will inevitably contain many errors or shortcomings. We have seen that Emily is familiar with exploratory work at home on the piano, which led to her being offered piano lessons. If her mother's assertion, 'you should have piano lessons', were taken to mean that these explorations are not very good, then Emily may have reason to want to keep this kind of activity hidden at school. In addition, credence for this idea is gained from her failure to refer to 'laying the groundwork' and 'exploring' strategies.

A final support for this interpretation arises from Emily's presentation of her composing process to the researcher. Over the course of the study she highlights several significant lessons in her composing process which she considers as her critical incidents. However, it has been noted that these critical incidents were supplemented with work from previous lessons. Upon subsequent analysis it is clear that these hidden lessons contain embryonic versions of much of the musical material which later forms her finished piece. For example, during Lesson 2.1 she records an idea (Figure 6.22) on the computer which later appears as her main melody (Figure 6.23). This is her first lesson working on the computer, but a lesson to which she makes no reference in her discussions. Building on the notion that she hides her exploratory work from her teacher, it is possible that this is a further example of her hiding her more personal meaningful musical experiences. She does this by invoking a 'conventional music-making' rhetoric, which, for Emily, is music making which conforms to the teacher's expectations.

Summary

Thus, as well as chunking the activities of crafting, judging and recording together into a single activity, Emily's descriptions and use of her composing strategies suggest that she may be hiding her more exploratory activities in order to conform with her teachers' expectations. As a result of this, it is unclear whether some of the strategy uses I proposed earlier are deflection activities or significant aspects of her working process. However, the main focus of this study was to uncover changes in students' use of composing strategies. As a result, the shifts in Emily's patterns of strategy use are just as significant, even when rhetorical. In actuality, during my examination of Emily's composing process I found significant shifts in the context of composing. These are discussed below after I first present the environments in which her strategies are employed.

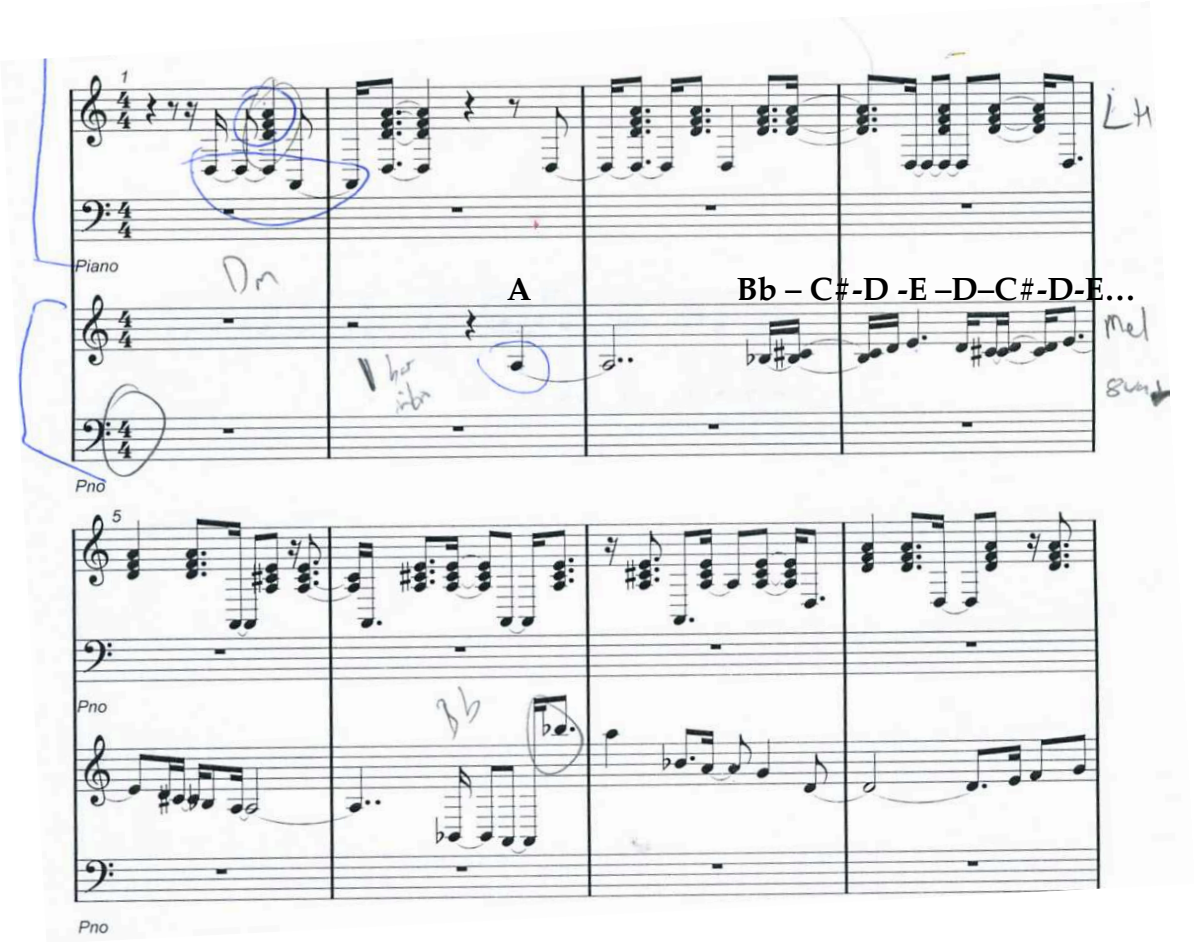

Figure 6.22: Emily's melodic idea from Lesson 2.1.

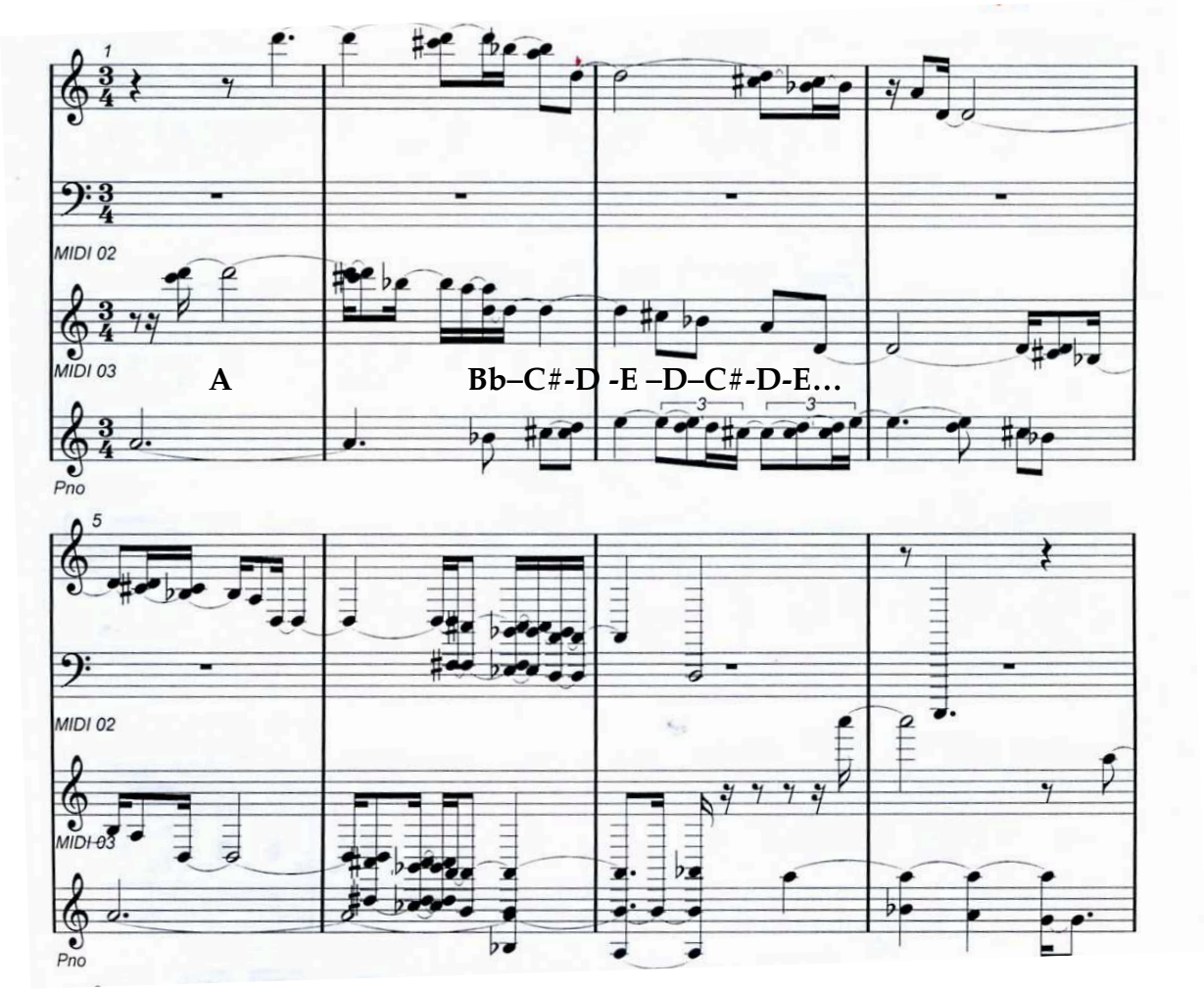

Figure 6.23: Emily's melodic idea from her final composition.

6.2.3. **Emily's Composing Community And Environments**

Alongside the different composing strategies noted above, patterns in the nature of Emily's composing environments also emerged during coding. In particular they point towards changes in the way she employs composing strategies that occur during the study. This will be discussed further in Section 6.3.

The nature of the environments in which Emily employed composing strategies can be clustered into four groups according to the nature of the interactions they involve: social interactions, and cultural interactions with physical tools, computer-based tools and conceptual tools. 'Social' is used to indicate the presence of others such as her teacher, her peers or the possibility of other individuals outside the class and 'cultural' refers to tools or artefacts that mediate activity (2.3). These are shown in Table 6.2 and will be discussed in turn.

The classroom community and social interactions

It was noted above that 'social' refers to the presence of others such as her teacher, peers or other individuals. These types of interaction are defined in terms of the roles of those involved. Thus in the classroom there are interactions with both teachers and with peers. In addition, when working in another room during lesson time there exists the possibility for interactions with peers other than their classmates. Furthermore outside the lesson there exists the possibility for interactions with family members, friends and instrumental teachers. While the current research cannot uncover the extent to which these possibilities occur, the potential for them to mediate Emily's composing is acknowledged in the identification of these locations as discrete social contexts. Attending to these interactions also does not exclude the notion that working by oneself is arguably a social context. However, for the purposes of this discussion we are interested only in interactions with *others* that mediate Emily's composing process.

Deductive groups	Emergent groups	Context code	Definition	Instances
Social interactions	Social interactions	Work with teacher	Interacting with musical ideas with the teacher	31
		Work with peers	Interacting with musical ideas with peers	148
		Work outside the lesson	Interacting with musical ideas outside lesson time	21
		Work in another room	Interacting with musical ideas in lesson time outside the classroom	12
Cultural interactions	Physical tools	Midi keyboard	Interacting with musical ideas with the MIDI keyboard	223
		Mouse and computer	Interacting with musical ideas with a mouse and computer	462
		Paper and pen	Interacting with musical ideas with paper and a pen	29
		Piano	Interacting with musical ideas with a piano	39
	Computer-based tools	Edit screen	Interacting with musical ideas with the edit screen	16
		Arrange screen	Interacting with musical ideas with the arrange screen	133
		Listening	Interacting with musical ideas with the computer speakers	127
	Conceptual tools	Compositional devices	Interacting with musical ideas with compositional devices	135
		Compositional features	Interacting with musical ideas with compositional features	113

Table 6.2: Emily's composing contexts, their codes and their inductive and emergent groups.

From analysis of Emily's composing process, it seems that social interactions are the least frequent mediator of Emily's composing process. At a total of only 212 identified instances

they account for only 14 per cent of her strategy uses. This low occurrence points to what appears to be a tendency to work in private, away from the presence of others. This is further discussed below in Section 6.3.3.

An example of an occasion when Emily's composing is mediated by social interactions can be seen in Section 6.2.1 when she spends *time away* from her composition with her friend in the practice room. This example is coded as *work with peers*. A further significant example is when Emily's friend investigates the possibility of extending her piece to include more than the two sections referred to in the task instructions[112]. In this case it is not Emily, but her friend, who inquires about whether this is acceptable[113].

(Friend) F:	I love the (sings), wow, I wish we had more than 8 bars in Section A. I wish we had more because I so want to do another section with another key change
E:	I asked Miss Brookes and she said, 'Do whatever you want...you know A C B, you can have anything', and I said, 'Can you have different instruments?' and she said, 'Do whatever you want.'
F:	Can you? I'm going to go ask her again.
E:	Ask her again...
F:	Cause I have got nothing to do and I want to have a minor section so badly
E:	Ask her.
F:	(Leaves practice room) Miss? You know our piece, when you've had Sections A and B, can we have like C as well?
T:	You could yes. The Blue Danube has A B Cs just going for ever and ever.
F:	Ok yeah! Cause I've sort of done A and B so... Oh!
F:	I 'm on a mission, wait, I need manuscript paper! (Re-enters practice room with Emily playing piece)
F:	Sorry, I couldn't resist. Perfect cadence walk through the door.
E:	God! No! I can't remember what I did.
F:	(About the teacher) She... I go to her...'Oh can, you know, we have Sections A and B? Can we have C' and she's like, 'Have up to F if you want' and I was like 'YES!'

This example demonstrates how Emily encourages her friend to ask the teacher for permission to extend the parameters of the task and, in so doing gains, support for the extensions she has already made to the task parameters. This example also draws attention to the significant difference in frequency between Emily's work with her teachers (31 occurrences) and work with her peers (148 occurrences). In fact she frequently uses her friends to communicate indirectly with her teachers. This is discussed further in Section 6.3.

[112] EWS 2.1
[113] EVM2.4 03h05m52s ref64-80

Mediated environments and cultural interactions

As in my presentation of Sam's composing environments, here I will employ the headings, physical tools, computer-based tools and conceptual tools, to distinguish between the contrasting but related nature of the opportunities presented to Emily as she composes across the year.

Physical tools

By far the most frequent cultural interactions during Emily's observed composing process is her use of physical tools, accounting for 753 or 51 per cent of her visible strategy use. This may be unsurprising as one might expect this type of interaction to be most easily visible, occurring between Emily and a physical object. This ease of identification will therefore have a bearing on the strength of any conclusions which may be drawn from the high occurrence of interactions with physical tools. She spends over 50 per cent of her composing time practically working through her composition either using the MIDI keyboard, piano, mouse and computer or paper and a pen. An example of her working in this way can be seen in section 6.2.1 where she uses the MIDI keyboard as she explores and records a new idea for her ending. A further example of strategy use with a physical tool is seen when Emily is working in the practice room on the piano and performs sections of her composition to her friend. The following is a transcript taken from the video at this time:

E:	(plays waltz) This is the first section…Oh, I can't do it all (presses pedals). It's supposed to be really quiet (plays). Anyway it carries…goes up the scale and it goes suddenly major…. (plays)...This is the bit where I don't really know what I'm doing.
F:	Oh, wow! Oh no, it sounds really good.
E:	And then it sort of goes...(play) Oh no!...(plays)...Oh no, I did it wrong. But yeah! And then it goes into F… It's supposed to be dramatic.

This excerpt demonstrates Emily's interactions with the piano and shows how these are not unproblematic. She struggles with the responsiveness of the pedals and also with the lack of dynamic range. Indeed, the piano she is working with at this time is in a poor state of repair and so her comments are fair. It is possible that the poor quality of the acoustic instruments contributes to her desire to use an electric piano. This is discussed further below in Section 6.3.1. It should also be noted that it is likely that much of her work on the piano is not included in these figures as she reports working at home in this way and this is not included in the analysis. This is further discussed in Section 6.3.

Computer-based tool

Emily's interactions with computer-based tools include working with the arrange screen (133 occasions), the edit screen (16 occasions) and when listening (127 occasions) to her work through the computer speakers. She uses the edit screen on relatively few occasions, instead tending to work by interacting with her whole composition in the arrange screen and then listening back to her work. An example of her working in this way can be seen during lesson 2.4 when she changes the tempo of her piece and then plays this back, rewinds and then changes the tempo again. Figure 6.24 shows a screenshot of the first tempo change, followed by the playback. Further examples of strategy use with computer-based tools can be seen in Sections 6.2.1 and 6.2.2 where Emily interacts with the *Cubase* arrange screen.

Listening is included as part of this group as the contexts created when playing back the music by using the computer are identifiably different from listening back when playing on another instrument. When using another instrument to 'perform to oneself', as it were, the attention is split between performing and listening back. In contrast it is possible to attend more closely to the music when the computer performs. Thus, in this case, listening is considered as an interaction with a computer-based tool. Of course use of physical tools such as the piano and MIDI keyboard will also produce sound which is heard. However, for the purposes of clarity 'listening' is used only to describe an intentional and discrete sonic interaction with the computer.

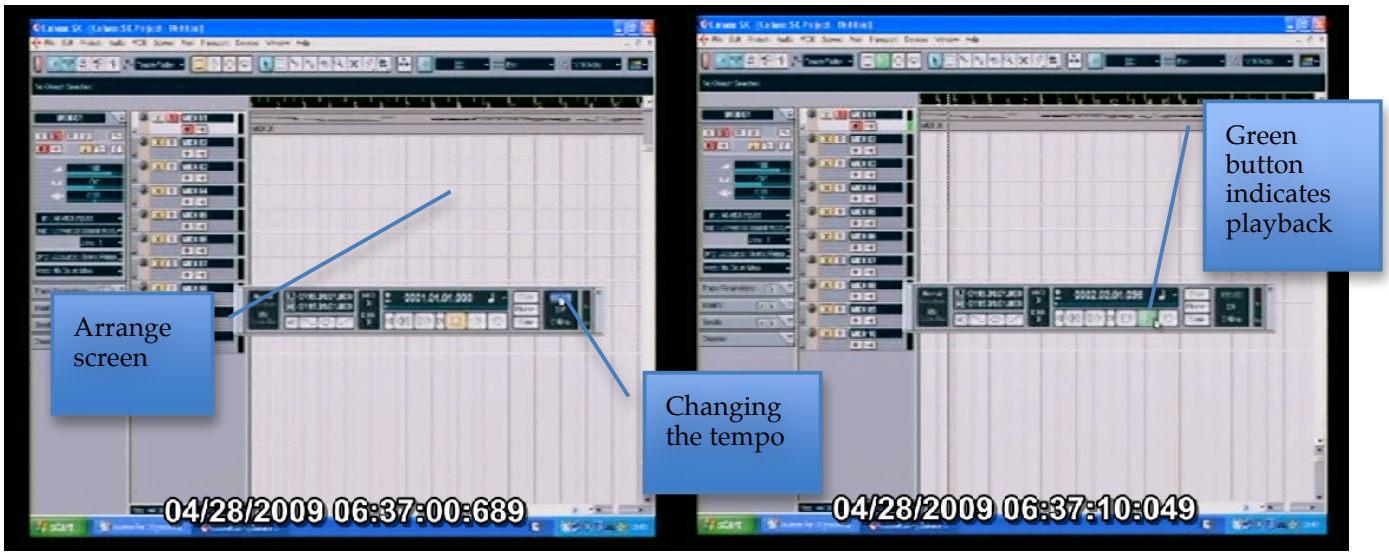

Figure 6.24: Tempo change by interacting with the computer-based tool 'arrange screen'.

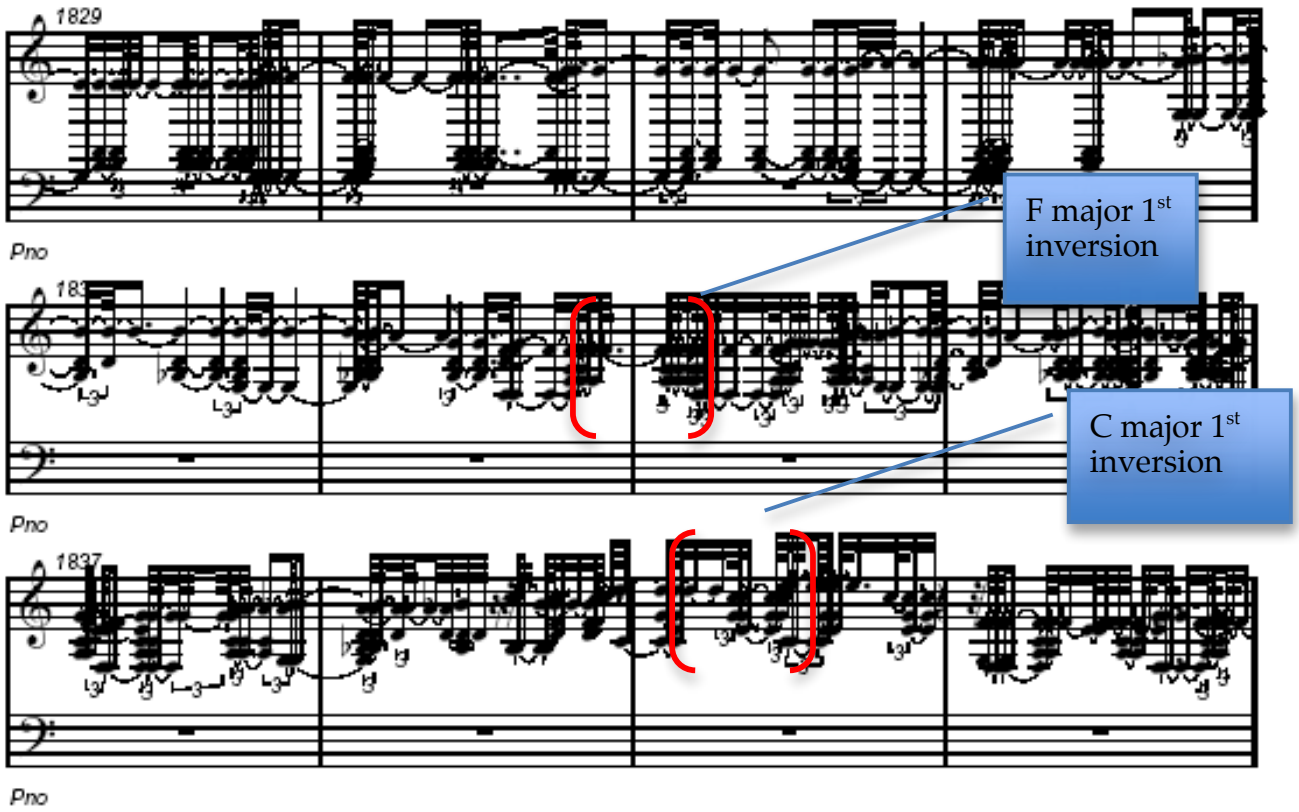

Figure 6.25: Compositional devices - chord inversions as part of the accompaniment.

Conceptual tools

The final group of contextual factors that mediate Emily's use of composing strategies are conceptual tools; which include compositional features (113 occasions) and compositional devices (135). An example of her working by interacting with a compositional device is evident when she discusses the need for chord inversions following lesson 2.3.

> E: Well actually my accompaniment, you know, I've just got like the chords and the 'um pa pa' thing. But I haven't really, kind of, thought of how I'm going to do the inversions; cause I don't think it sounds that nice. The first waltz I did inversions and it sounded right, but on this one I haven't thought about it. I'm going to leave that till the end.

The MIDI score from this lesson verifies her use of chord inversions in her accompaniment pattern during this lesson. This can be seen in Figure 6.25. This example also demonstrates Emily's work with a *compositional feature* in the 'Oom pa pa' accompaniment Figure, illustrating that different cultural tools were used concurrently. The 'Oom pa pa' Figure is a waltz feature that is presented through the teacher worksheet given to the class at the start of the project[114], although in this case it is called 'Oom-cha-cha'. The difference between compositional devices and features in this context is that the former are general theoretical tools for composing, whereas the letters are specifically linked to the style of piece being composed. Furthermore, although many compositional features are explicitly mentioned on worksheets, they are still considered to be used strategically as students were free to choose which features they employed[115].

Summary

Emily's composing process takes place in a way which can be described as being mediated through environments containing four different types of interaction: social interactions, and interactions with physical tools, computer-based tools and conceptual tools. The types of interactions most frequently identified were those with physical tools, such as the MIDI Keyboard and the mouse and computer. Emily also interacts with different cultural tools simultaneously. Having looked at the nature of Emily's composing strategies and the contextual interactions which mediate their classroom use, we will now move on to examine her compositional development, as demonstrated through qualitative changes in her strategy use over time.

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[114] EWS1, EWS2
[115] FN2.1-2.5

6.3. EMILY COMPOSING OVER TIME.

Across Emily's composing process changes in her strategy use and in her interactions with the composing environment suggest three significant developmental trajectories. Firstly, changes in her interactions with cultural tools implies a tension between the constraints imposed by the composing task, on the one hand, and her desire to achieve while also experimenting and pursuing personal expression, on the other. Alongside this, a decrease in problem solving suggests that an increasing mastery of tacit classroom rules allows Emily to develop a more 'artistic' way of working. Secondly, and following on from this, Emily's increasing success in exploiting the tacit rules of the classroom is paralleled by a temporary increase in the time she spends away from the composition. Together with an increase in her social interactions, this further suggests that she is using time away and practising as a means to negotiate constraints she perceives in the composing task. Thirdly, a significant change in her interactions with computer-based tools takes place between Phases 2 and 3. At this point she transforms the nature of the composing environment significantly by shifting her work fully onto the computer and in so doing, achieves the private space for experimentation that she has conceived at the outset of the research. It is at this point that Emily fulfils both the explicit and the tacit rules of the classroom. These will be discussed in turn.

6.3.1. Emily, Composing And The Task: Towards A More Artistic Way Of Working

Over the course of Emily's composing process there is a significant decline in her use of problem-solving strategies. Figure 6.26 shows Emily's use of problem-solving strategies over time. The decline is from 54 during lesson 2.3 to 10 during lesson 2.6. We have seen that Emily's culturally mediated interactions involve conceptual, physical and computer-based tools. Taking an example of her use of each of these, I hope to illustrate how this decrease in problem solving is an indication of Emily's development of a more expressive and personal way of working through the mastery of tacit classroom rules.

Negotiating conceptual freedoms: a personal approach

Firstly, this decrease in problem solving highlights the large amount of time Emily spends at the start of her critical incidents attempting to negotiate with the teacher about the parameters of the task, as defined by conceptual tools embedded in the worksheets. A notable feature of this lies in her moving away from working with her peers in lesson 2.3. This is illustrated in Figure 6.26. Emily frequently problem-solves with her classmates

during lesson 2.3. If we interrogate this further, we see that this strategy use regularly involves discussion relating to the nature of the composing task.

For example, we have previously seen (6.2.3) how during lesson 2.3 she spends time discussing with her friend the limitations of using only two sections, as described by the worksheets,[116] and how she has asked the teacher about ignoring these instructions[117]. At the end of this discussion Emily makes the comment, 'They'll have to deal with it anyway'. This is significant because her friend, having asked the teacher, has just been given permission to extend the piece, and yet Emily's comment suggests that this will present the teachers with a difficulty: something to deal with. While at first seeming to be sure that they can structure the piece however they choose, I think Emily's final statement suggests she is, in actuality, less than convinced that making changes to the task is strictly permitted. Nevertheless, she is happy to continue in the awareness that whatever they choose to do, 'they will have to deal with it'. While it may be that the initial high instance of problem solving is high due to the need to understand the task, these comments about the task parameters support the idea that her initial engagement with the task is one of trying to negotiate the conceptual tools defined by the task parameters rather than merely to understand them. A further discussion suggests that she is not comfortable with the structure of the composing tasks and thus might have cause to change them[118].

> E: It is just a bit boring and tedious we have to learn all this stuff about like when you compose melodies, she gives us a sheet and it's like use passing notes, and you have to use passing notes and you have to use auxiliary notes even if you don't want to.

This excerpt seems to suggest that Emily is identifying specific conceptual tools in the worksheets as the reason she finds the task restrictive. This supports the interpretation that her efforts to negotiate the tools are directed at finding a way of working that she 'wants to' use: a more personal approach.

[116] EWS 1, EWS2
[117] EVM2.4
[118] EIPF

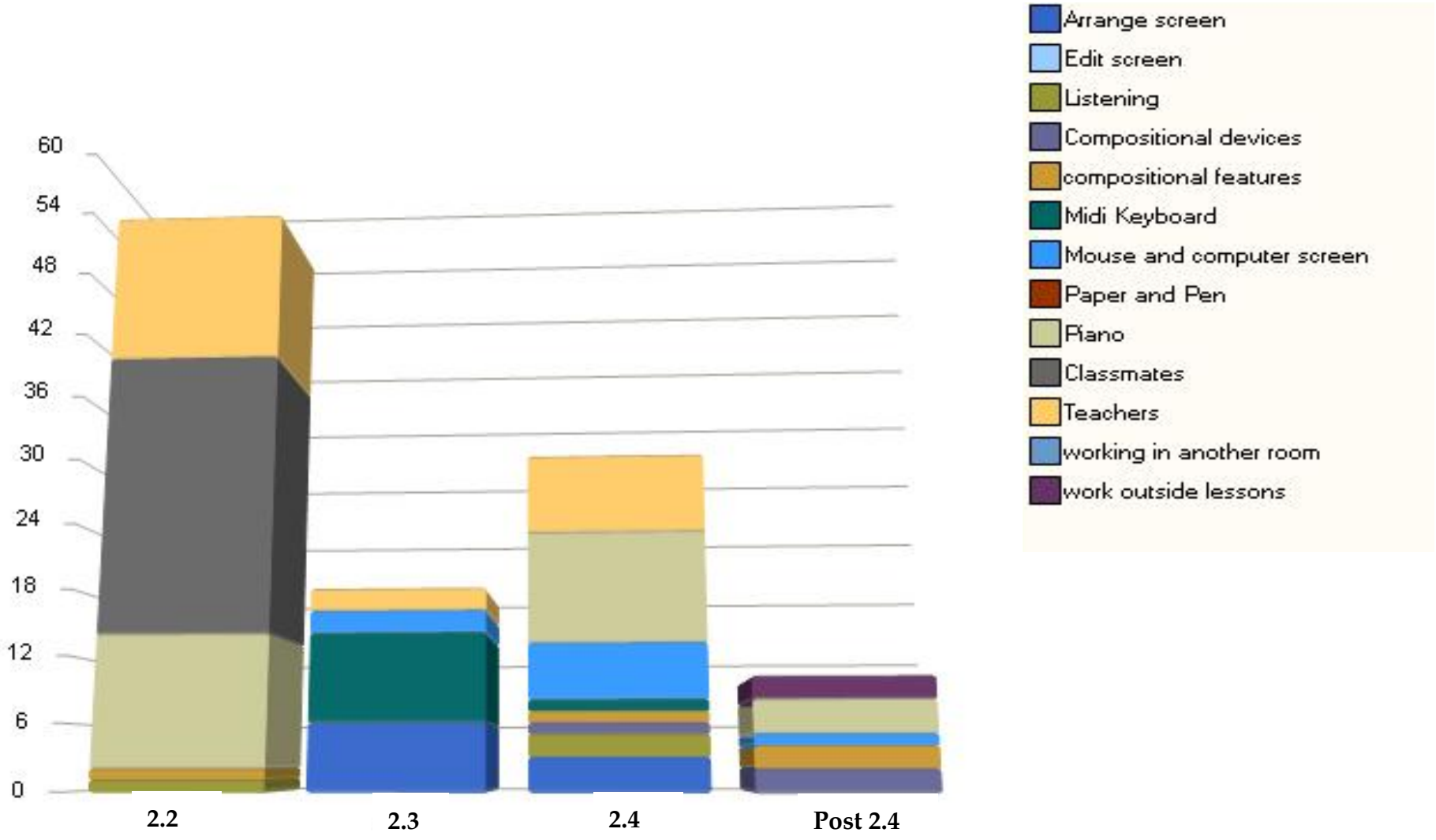

Figure 6.26: Problem solving over time.

Negotiating Physical Tools: An Expressive Environment

Secondly, the decrease in problem solving across Emily's critical incidents is seen in her change from using the computer, as the worksheet suggests, to performing live on the piano. During lesson 2.4 there is a noticeable shift towards problem solving by working with the teacher. This highlights a second Phase in her negotiation of the task. Whereas early in the composing process Emily was negotiating for greater freedom in terms of conceptual tools, during lesson 2.4 she is working on negotiating the physical tools. Most of the instances of problem solving with the teacher in lesson 2.4 seem to be demonstrating that the computer is not effective for Emily's composition. This is how she describes her work at the time[119]:

E:	**Well, I was kind of always doing it on the piano** anyway. When I got to school I wanted to kind of hear it recorded. But it wasn't really happening that much **so I thought it just was so much easier** on the piano. I practised it more on the piano. I thought it would be better basically.
P:	When you say you were always doing it on the piano, what do you mean?
E:	Well, I mean obviously not at school but if I practise at home, it would always be on the piano basically. If I was coming up with ideas, it was just kind of...I generally didn't make **up new stuff at school on the computers,** I just sort of put it together and kind of work on it there. I'd just come up with the ideas at home, yeh. Well, actually I just kind of put them and see if they worked. If they didn't work, then I just...I don't know it's easier to kind of just sort of hear it back and hear all my ideas last week and stuff. It was easy to do that on the computer. Like taking stuff and put something. **I didn't physically do it on like *Cubase*.** I like put like loads of stuff and like kept on saving it and things.

This passage suggests that Emily always plans to perform her composition on the piano and that it is much easier done in this way. She also states that she does not make up ideas on the computers and that she does not 'do it on *Cubase*'. Her description is of a composing process that does not make significant use of the computer software. Yet, at the same time, within the lessons she is playing her ideas into the computers. When the teacher walks over to where she is sitting,[120] she has the following conversation[121].

E:	Mine doesn't sound very good because...I can't I just can't..
F:	But yours sounded good on the piano yesterday.
E:	Yep, this is a keyboard and mine needs about 10 octaves and this is about 2. OK, not 2 literally, that's not enough, nowhere near enough. It's nowhere near enough!
F:	It's not enough, how many octaves do you need then?
E:	A piano has like 8. Does it 8? Does the piano have 8 or 9? This just doesn't work. And it doesn't, it just doesn't work.
F:	It sounds good though cause it was good yesterday
E:	Well, it's not any more.

[119] EVSR2.4
[120] CV2.4
[121] EVM2.4

At this point Emily has been working on her compositional ideas outside lessons on the piano[122]. Thus it is possible that, having realised that the MIDI keyboard does not give her the physical resources she needs, she now needs to convince the teacher that the rule of performing on the computer needs to be relaxed for her. It is worth noting that while the MIDI keyboards do have fewer notes than a regular piano, recording the left and right hands separately and adjusting the pitch of the keys could resolve the difficulty Emily faces at this point. Yet, as she does not do this, it is possible that the more expressive and immediate interaction afforded by a piano lies behind this discussion. Thus, as well as negotiating conceptual freedoms, it seems that Emily is also attempting to negotiate the physical tools available to her for this composing task.

Negotiating Computer-Based Tools: Perceiving Cultural Constraints

A final and related change in Emily's use of problem-solving strategies is that while there is a brief peak in problem solving with computer-based tools during lesson 2.4, they hardly feature after this time. During the subsequent interview following the composing session in lesson 2.4 Emily describes how the computer does not work[123]:

E:	Basically, well, it's not really what you probably want to hear but it's just it didn't sound very nice. It just didn't, you know, it didn't sound like a piano even if it was on piano. The keyboard wasn't big enough; it didn't have any pedals. It just didn't work and it didn't suit my piece either cause even if it was on like touch, you know, like whatever it's called, it didn't really have the dynamics and stuff. It just didn't work.
P:	If I'd have asked you, 'What is your piece going to be like in two weeks when you've finished this.' what would have been the answers?
E:	Well, I wanted it to have 2 parts… I was doing it on the piano.
P:	Did you have special permission for that or was that something?
E:	Well, no. I just kind of assumed I could and then nearer the time I thought 'Oh dear!' So I asked her (the teacher) and they said, 'Yes so it was fine. She said if you want to do it on if you want to record it live, then you can so it was fine.

In this discussion, she appears to distinguish between 'what works' and 'what does not work' as she reinforces the notion that the piano is a more appropriate medium for her to use with her composition. Thus Emily's lack of composing with computer-based tools after this time appears to be because she has perceived that they don't work for her composition and constrain her way of working.

This conclusion is supported by an increase in 'laying the groundwork' during lesson 2.4 which mirrors the changes in problem-solving strategies. Emily spends a significant amount

[122] EIPF
[123] EVSR2.4

of time during this lesson engaged in activities that suggest she is struggling to realise her ideas on the computer. For example, at the start of the lesson she alternates between playing and recording the harmonic minor melody that appears towards the end of the finished piece. The first time she performs it without mistakes. Then she records it and after making a mistake, deletes and records again. This process is repeated for several minutes. The finished track is shown in Figure 6.27. The laying the groundwork activities of tempo change, moving around the workspace and isolating the track using the 'solo' button that occur throughout this time and into the following section of working all take place with computer-based tools, yet have little impact on her success in recording.

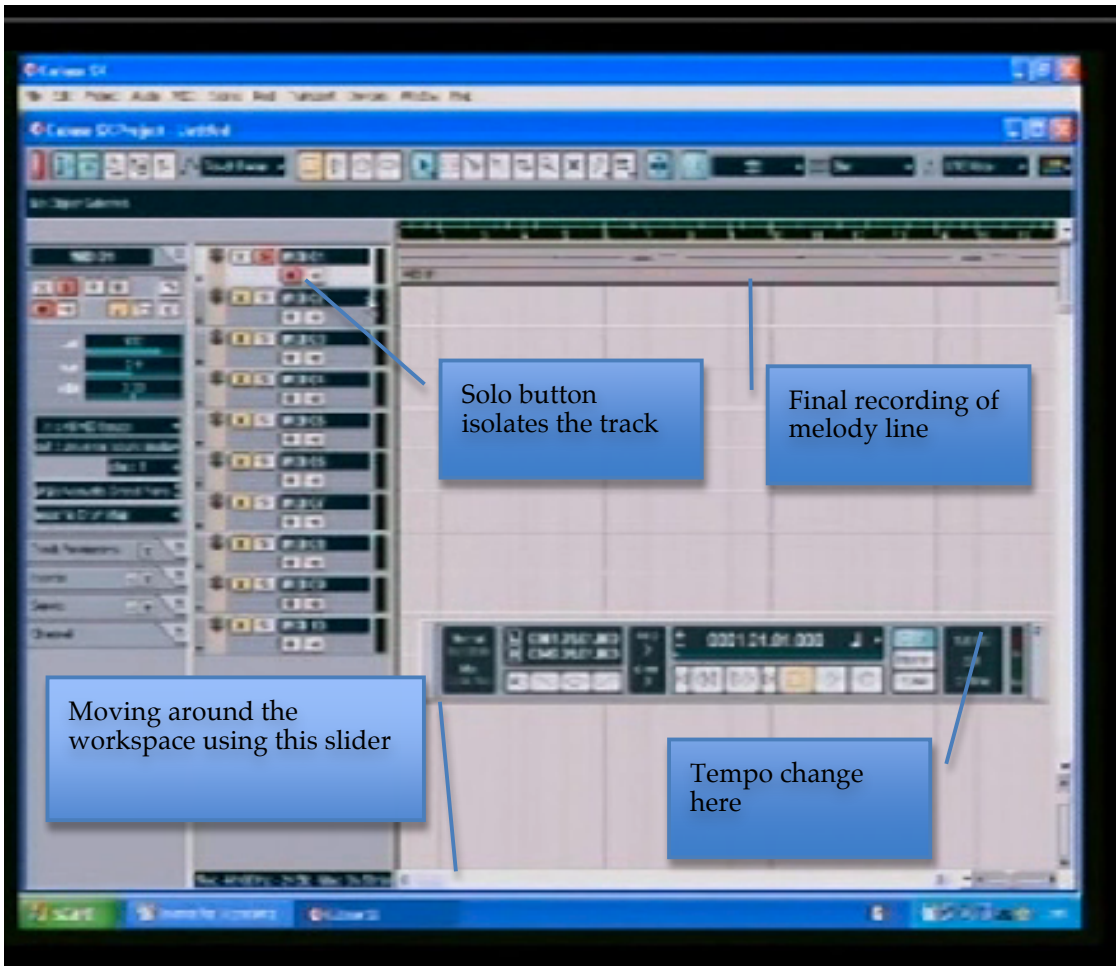

Figure 6.27: Laying the groundwork activities while recording a melody.

However, it has also been seen that after lesson 2.3 there is a significant decrease in the amount of problem solving that occurs. Emily describes in her interview how early on in the process she made the decision to use the piano to perform her finished composition[124]:

[124] EVSR2.6

P: And what was the ....at what point did you make the decision?
E: I kind of always didn't want to do it, like show it on *Cubase* cause it just (shakes head) didn't sound very nice
P: You didn't find it helpful ?
E: No (laughs)

In the light of this early decision to work on the piano, the significant increase in laying the groundwork seen during lesson 2.4 rather than effort being directed at using the computer, is perhaps more likely to be an attempt to demonstrate that the computer fails to perform as required.

Towards a more artistic way of working

Both changes in Emily's use of problem-solving strategies over time and the development of a laying the groundwork strategy through conceptual, physical and computer-based interactions suggest two tacit rules, which it seems Emily may have discovered. These rules can be described thus:

- The task as defined on the worksheet can be modified through negotiation with the teacher to achieve a more personal approach.
- If you show the teacher that the computer is not helpful, then you can perform your composition using a piano as a more expressive instrument.

These rules are supported by the teacher's reflections on the task and on the use of digital technologies as well as by the final high marks she awards Emily for the composition task[125].

However, it is also possible that Emily's work during lesson 2.4 is a genuine attempt both to engage with the parameters of the task and work on her composition using the computer. Still, it is worth noting at this point that there is significant evidence of computer use in the development of ideas prior to lesson 2.3[126] and so ample time for her to realise the difficulties of using the computer for her piece prior to this point. Thus it seems likely that this lesson is an attempt to demonstrate that the computer is not helpful in order for the teacher to give Emily permission to use the piano. This possible rhetorical use of her composing strategies or deflection activities is potentially a significant part of the way in which Emily's compositional development proceeds from this time. In adapting the composing task and moving on to the piano as the medium of composing, she may be giving herself time to compose in private at home, away from the classroom where she already employs a personal expressive approach with which she is familiar and which contains multiple sections and complex harmonies. This possible 'rhetorical' strategy use

[125] TIF
[126] FN

becomes all the more significant when considered alongside the evidence of Emily's work with her peers to co-construct musical opportunities for composing through social interactions. This is highlighted by changes in her use of strategies of practising and time away.

6.3.2. Emily, Composing And Her Peers: Constructing Opportunities For Development

The significance of performing in Emily's music making outside school has been noted above in Section 6.1; she regularly performs on the piano for her family. Following this, we also saw how she practices at home to be successful when performing at these events. In addition, we have noted that it is possible that she values involvement in activities that present her as a successful student. Over time, qualitative changes in Emily's composing, practising, crafting, recording and time-away strategies suggest a comparable practice is at work in her school composing process. From analysis of these strategies over time, the story emerges of a progression from working in a safe space to a shared space in which she can utilise her existing skills as an accomplished pianist and performer.

Practising with a friend

During lesson 2.3 there are several instances of practising in the context of work with classmates (Figure 6.28). At first this may seem to contradict the notion that Emily takes great effort to ensure that she is successful when working in front of others. However, her discussions are in the context of work in a separate practice room with only her friend in the room[127].

F:	I was doing like one of those big dramatic things at the end where they go...dum dum
E:	Mine just sounds like some kind of strange thing. (About the piano) I hate this. I hate even touching it. It feels horrible. (She plays her waltz) This is the first section.
F:	It sounds loads of minor. No, but could you imagine then going like this (sings)
E:	Oh, I can't do it all (presses pedals). It's supposed to be really quiet (plays) ...anyway it goes up the scale and it goes suddenly major. I wish they'd tune the piano. I just can't believe it. This is horrible.

In the passage above it seems as though Emily is struggling to play her piece because of the quality of the piano. The field notes[128] verify that this piano is indeed in a poor state of repair. However, the pianos in the main music room and in the second music practice room

[127] EVM2.3
[128] FN2.3

are both free at this time[129]. Thus Emily's complaints beg the question as to why she chooses to use this practice room. It may be that this is due to its distance from the main music room, as it is a short walk from the room at the end of a corridor. This explanation may reinforce the notion that Emily seeks privacy from the class at this stage. However, it may also be the case that she chooses this room so that the piano can be blamed for any poor-quality passages. It seems that she is playing ideas for her friend in this context because it is 'safe' and cannot be considered a proper performance due to the broken nature of the playing and Emily's comments on her inability to play 'properly' due to the deficiency of the piano. This is a meta-performance to reinforce the perception that she is successful: this time as composer and performer. Indeed as a meta-performance it seems to work as her friend strongly complements her piece[130]:

F:	No, that's really good cause it sounds, like, really dramatic and everything. Oh, wow! Oh my god, it's so cool. It sounds like..(sings along) What key is it in? Oh, my favourite!
E:	It's absolutely terrible!
F:	The eeriness!
E:	And then it' supposed to go sort of…(plays)
F:	That sounds so good

It should also be noted that this is the same lesson and space in which she encourages her friend to negotiate the extension of the task parameters by asking the teacher to allow them extra sections (6.3.1). Thus it seems as though Emily is using this space as a safe place to practise her piece, while gaining support from a friend for her successful use of the piano and also for her use of additional sections.

[129] FN2.3 CV2.3
[130] EVM2.3

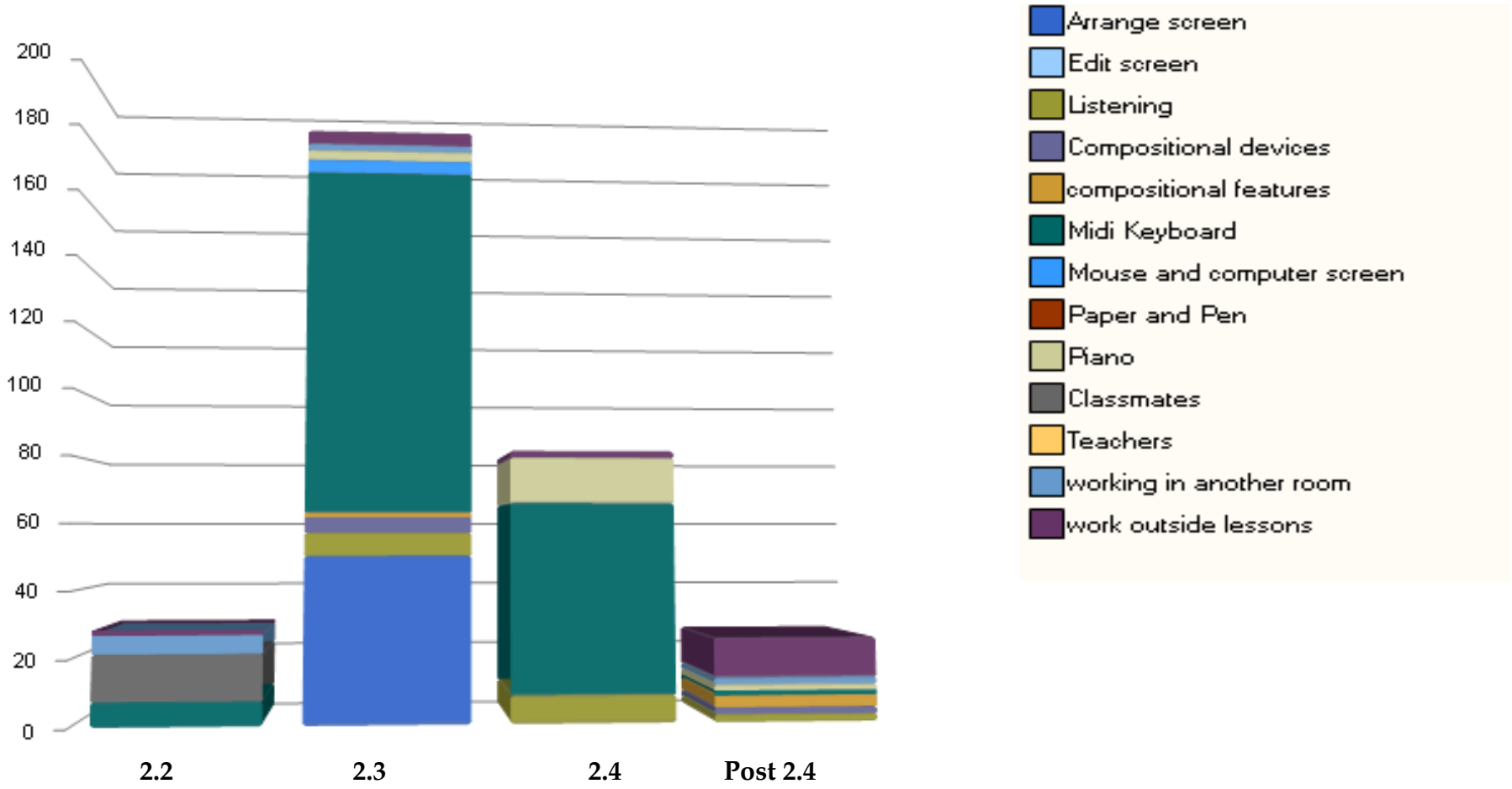

Figure 6.28: Interactions over time for practicing.

Practising in a semi-shared space

During lesson 2.4 we then see a significant increase in practising, alongside a dramatic increase in her use of recording and crafting strategies. This is illustrated by Figure 6.29. The majority of this strategy use is through interaction with the arrange screen and with the MIDI keyboard, which allows her to play her ideas when used in conjunction with sounds that are available through the arrange screen of the computer. Figure 6.30 shows how each computer workstation also makes use of earphones, making this method of working private, even though the computers are in a very visible space around the classroom. For this reason I have called this space 'semi-shared'. We have previously noted that we can conjecture that success in performance is important to her (6.1). This idea is reinforced by her discussion with peers during lesson 2.4[131]. Here we see Emily discussing listening to compositions with a friend. Emily agrees to listen to her friends but manages to negotiate her way out of her friend listening to her work saying that her friend will have to wait until it is finished.

F: Can I listen please? please...please? please?
E: No, No.
F: You can listen to mine if I listen to yours, it's only fair.
E: No! You can't listen to mine.
F: Oh, yeh! Well it' s, sorry but I'm afraid, well, I don't know if mine's any good so you might as well.
E: No, yours is good
F: Well, how do you know? Just by the look of it you think it's amazing! But it isn't actually so… (Talking about software screen) Did you just close it?
E: Yeh, I did.
F: Oh, but...
E: No, please don't.
F: I want to listen to it and you can listen to mine.
E: No! I'm going..I'll have to delete it before you ...
F: Oh, what! Oh, please, you need some criticism, Emily. Good criticism
E: I promise you I can criticise it myself.
F: No - I want to criticise it.
E: That's not nice
F: No in a good way. Criticising doesn't mean you have to say bad things.
E: I can promise you I will let you look at it when it's finished.
F: OK, you'll listen to mine when it's finished or you can listen to mine now if you want. OK, go on then. OK, put the headphones on. It may sound like really dodgy at some points but I've got to work on that bit. Ready, go! It's really long by the way and it hasn't finished.
E: Aw! Oh, that's so sweet. That's so lovely.
F: No, it isn't !
E: It's so sweet!
F: It like...its like mine's all 'majory' and there's this one minor section where it goes (sings).
E: Yours is so good.
F: Now can I listen to yours?
E: No.
F: Aw please?
E: Oh! Sorry!

[131] EVM2.4

F: OK, but I am going to listen to it.
E: You'll listen to mine when it's finished.
F: Yeah, that's fine, I don't mind. I'd just like to listen to it.

This excerpt of dialogue underlines the notion that although she is in the presence of others, her composing work in this context does not have to be a performance of her piece. Indeed, Emily takes great effort to ensure that her friend does not hear her work in this context, as it is not finished. This is all the more striking when considered alongside her willingness to play her piece for the same friend the previous lesson on the piano. In the previous section we noted that during this lesson Emily is laying the groundwork for gaining permission to use the piano by demonstrating to the teacher that the computer is unsuitable for her composition. Taken together, these patterns suggest that her use of the computer and MIDI keyboard during this lesson may be further evidence of the notion of a possible rhetorical performance or deflection activity, introduced above in Section 6.2.

Further insight into this activity is found during lesson 2.4 when instances of Emily composing within the task parameters (ie recording into the computer) turn out to be hidden examples of practising. The ideas being worked with are not new and, once recorded, are immediately deleted. Turning first to Emily's use of recording and crafting strategies over time, we see a marked increase in both for lesson 2.4 (Figure 6.29). Yet, if we look at the nature of these instances, we see that these strategies repeatedly involve the same ideas with little change in their iteration. Thus, while they have been coded as crafting and recording, their real function may be to perform 'recording' and 'crafting' while in actuality practising ideas which, as we have noted, she already intends to perform on the piano. An example of this type of strategy use can be seen when at the start of the lesson she repeatedly records ideas onto *Cubase* and then deletes them. Table 6.3 is a transcription of the video showing her work on the computer screen[132]. The MIDI activity makes it clear that the same ideas are being played (Figure 6.30).

Time:	Activity:
23:39:0	Record, delete, rewind, play keyboard, record melody, delete, rewind, record melody, rewind, play keyboard

Table 6.3: Transcription of video showing Emily repeatedly recording an idea onto the computer.

[132] ECV2.4 23:39:0

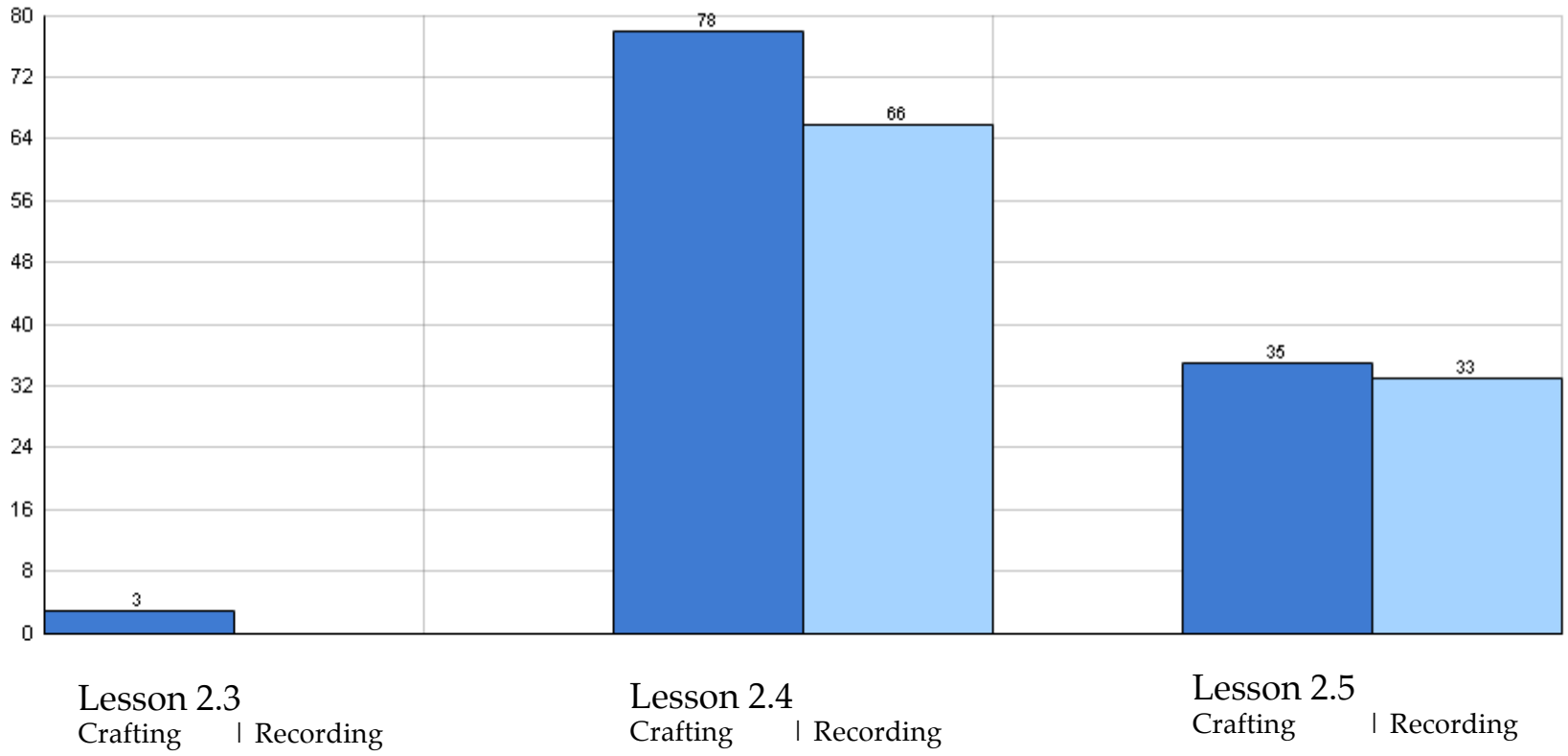

Figure 6.29: Emily's recording and crafting strategies over time.

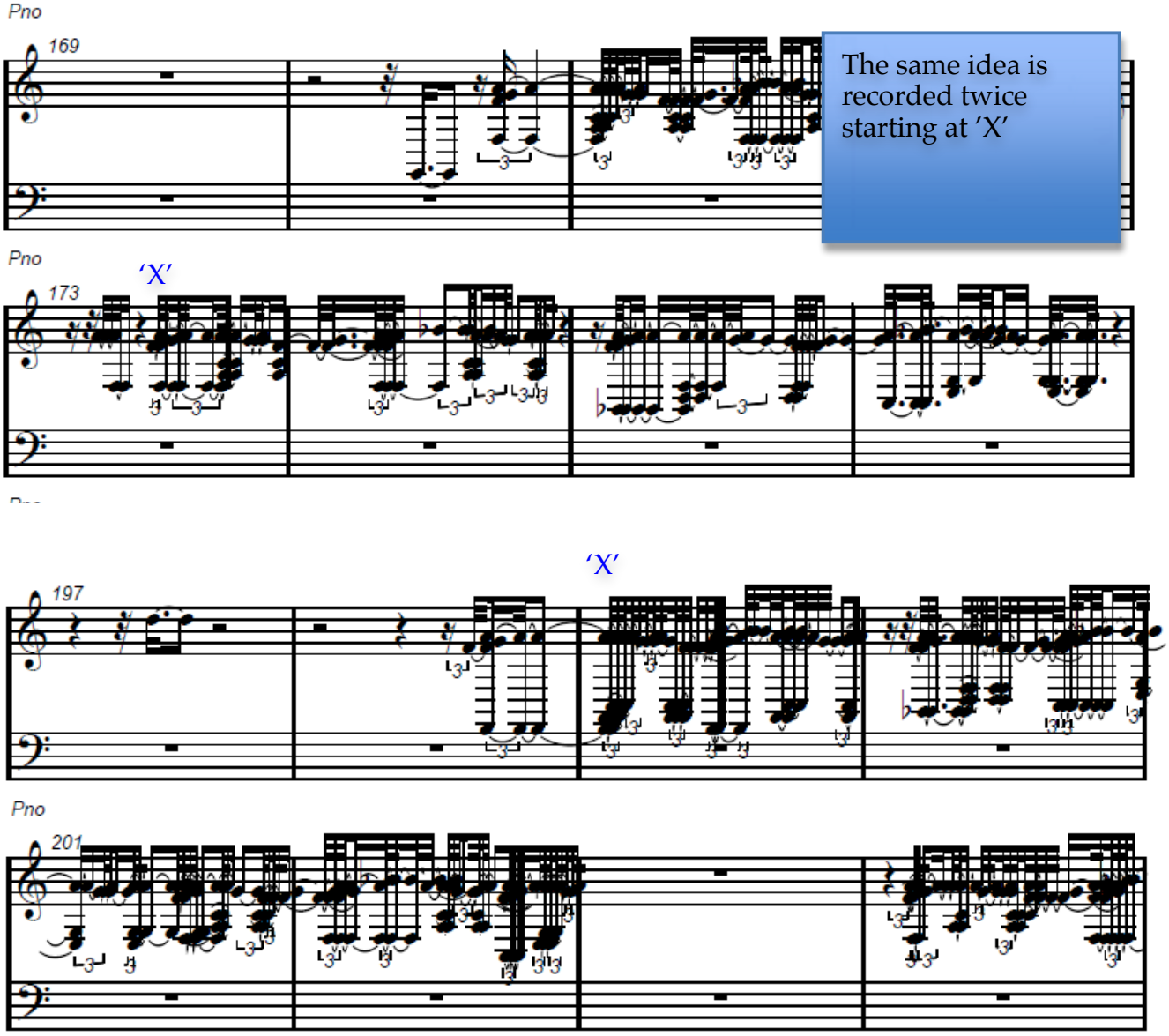

Figure 6.30: MIDI activity showing the same idea recorded twice then recording is deleted between bar 176 and bar 197.

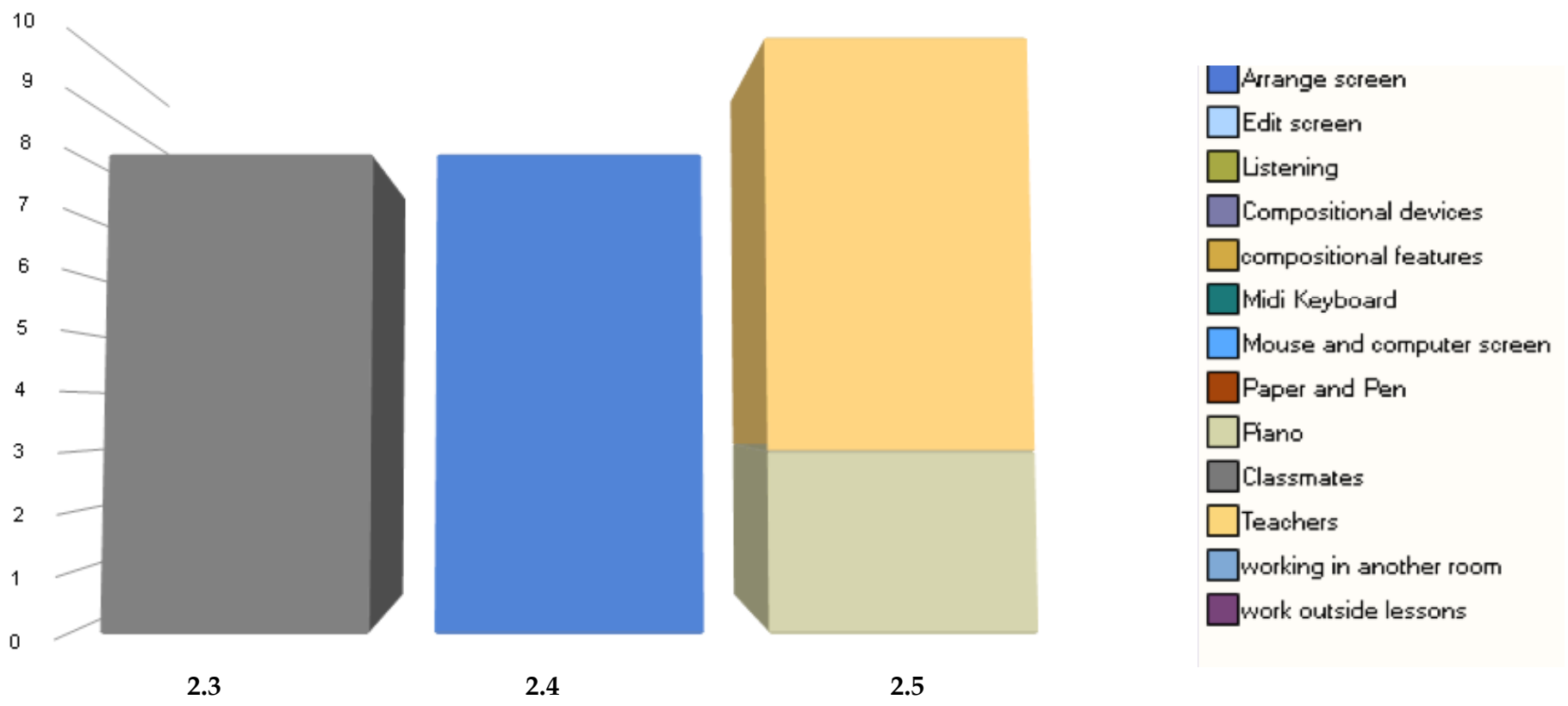

Figure 6.31: Emily's contexts for time away over time.

This notion that Emily is merely 'performing' working on her composition and not engaging with the set task is also reinforced by the changing nature of her 'time away' strategy. Across her critical incidents we see that the context for Emily's time away shifts from interaction with classmates (2.3), to time away using the arrange screen (2.4). This is shown on Figure 6.31. In each case the context of her 'time away' is the same as that of her performing strategies. During lesson 2.3 she performs for her friend and during lesson 2.4 she performs for the teacher using the arrange screen. Thus it seems as though her performing is interwoven with her explicit 'time away'. It is possible that these 'time away' activities are attempts to divert attention towards specific 'off-task' behaviour in the hope that this will hide the larger matter that in each case her performance of composing is itself not 'on task'. During lesson 2.3 Emily is working with a partner but the task is supposed to be an individual composing task. Then during lesson 2.4 any composing seems to involve practising her composition rather than recording it onto the computer.

Thus during lesson 2.4 it appears that there is a 'performance rhetoric' which deflects the idea that Emily is not working within the framework of the set composing task. In some cases she presents a further veneer for the researcher by calling this 'experimenting' when in actuality she is recording and crafting (including deleting) the same ideas she is practising. This returns us to the notion of success, and the importance of appearing to be successful within the classroom. In calling her recordings 'experimenting', she makes it appear as though she is able to improvise new ideas 'on the fly' as an accomplished improviser might; all the while she is in actuality performing old ideas that she cannot yet play. In this way, the presence of the computer allows her to use the description 'experimenting' to hide from the researcher her lack of proficiency in the performance of her composition on the MIDI keyboard.

Performing in a shared space

The last part of this development is seen in lesson 2.6 when Emily finally performs her piece for the teacher. This space is now fully shared and is heard by the teacher, as well as being recorded for examination purposes. During lesson 2.6 Emily performs on the piano rather than using the computer. She uses multiple sections and is both practised and successful, being now in a similar musical environment to the one she uses regularly at home. If we now remember that much of her initial composing work has been done at home (6.2), it seems as though she is moving through the following progression:

- Working in a private space at home on the piano;
- Working with a friend, practising in a relatively low-risk private space and negotiating the addition of extra sections;
- Working in a higher-risk, semi-shared space, deflecting while practising and negotiating use of a piano;
- Working in a fully shared space which perfectly suits her existing expertise.

In this way it seems that Emily makes use of her social interactions to explore ways of negotiating the task constraints to fit her existing abilities as she shifts her work gradually from a private to a shared space

6.3.3. **Emily's Computer-Mediated Environment: Towards A Private Space**

A final, and no less significant change, takes place in Emily's shift to working entirely with computer-based tools. This development can be viewed as a new resolution to the previously mentioned tensions between, on the one hand, what seems to be Emily's perception of the constraints imposed on her by the composing task and her artistic way of working, on the other. Furthermore, this computer-mediated context also allows her to overcome the contradiction between her apparent tendency to work productively in a private space and the need for her work to be shared in order to succeed in the classroom context.

It has been noted (4.6) that the second main composing task involves the composition of a piece of music based on the student's own choice of style from their performance music pieces. In addition, for the second task students are allowed to use the full range of equipment available in the department, in Emily's case of particular importance is the suite of Mac computers running the software program *Logic* and the electric piano.

A Task-Oriented Artistic Way Of Working

Looking back to Emily's work during Task 1 for a moment, figures 6.32 and 6.33 show the changing nature of her interactions when exploring and preparing. Figure 6.31 illustrates that during lesson 2.3, Emily's exploration takes place largely through interactions with classmates (grey shaded area). From our discussion above we know that this takes place in a private space: the separate practice room. In Figure 6.32 we can see that during the same lesson there are relatively few instances of preparing, that is, bringing in work from home. This trend is consistent with Emily's 'artistic' pattern of working with the piano, in which she explores many ideas in an improvisational way but using familiar melodic fragments and chords. In one such example from lesson 2.3 Emily uses the chords and melody from Bohemian Rhapsody[133] to try out a new musical idea.

[133] Bohemian Rhapsody is a popular song by the group Queen from the 1975 album 'A Night at the Opera'.

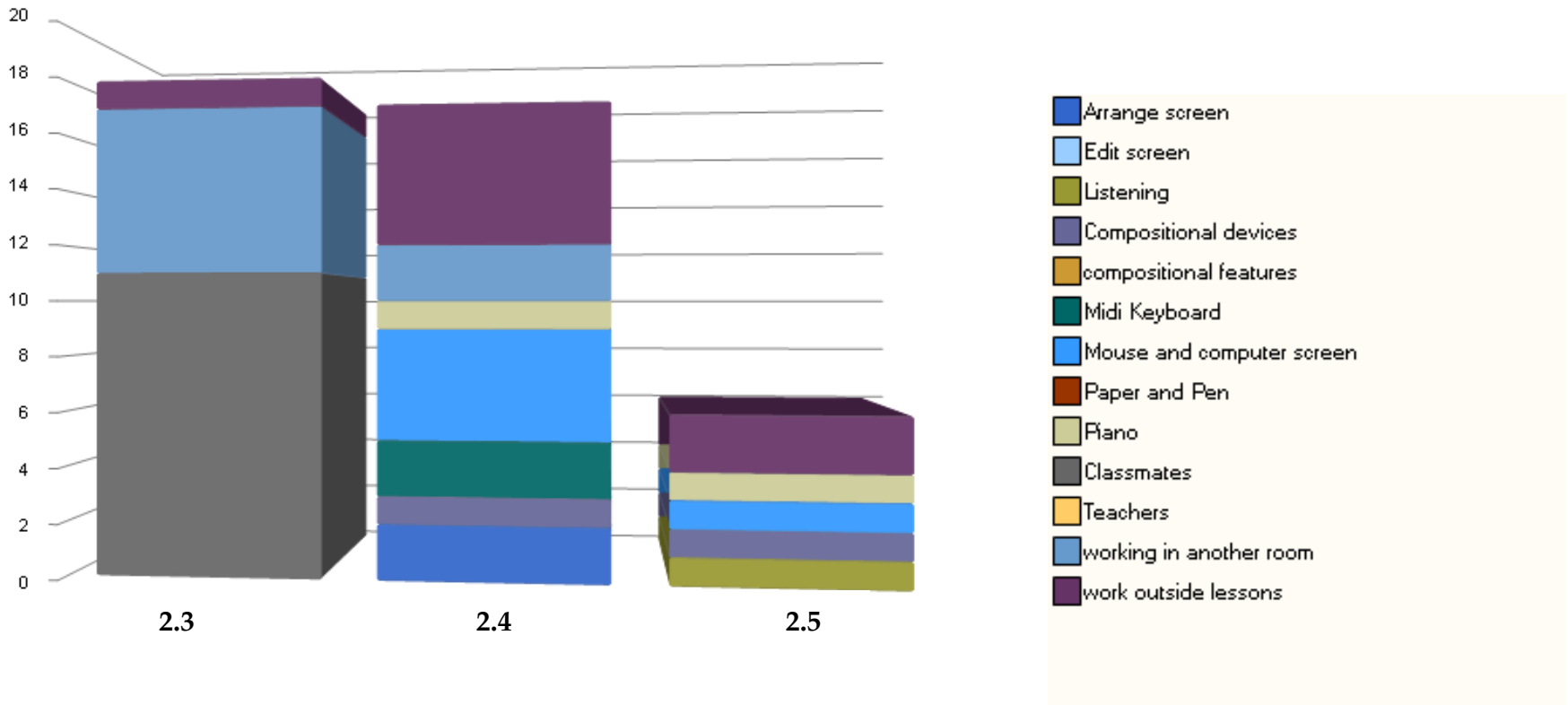

Figure 6.32: Contexts of exploring over time.

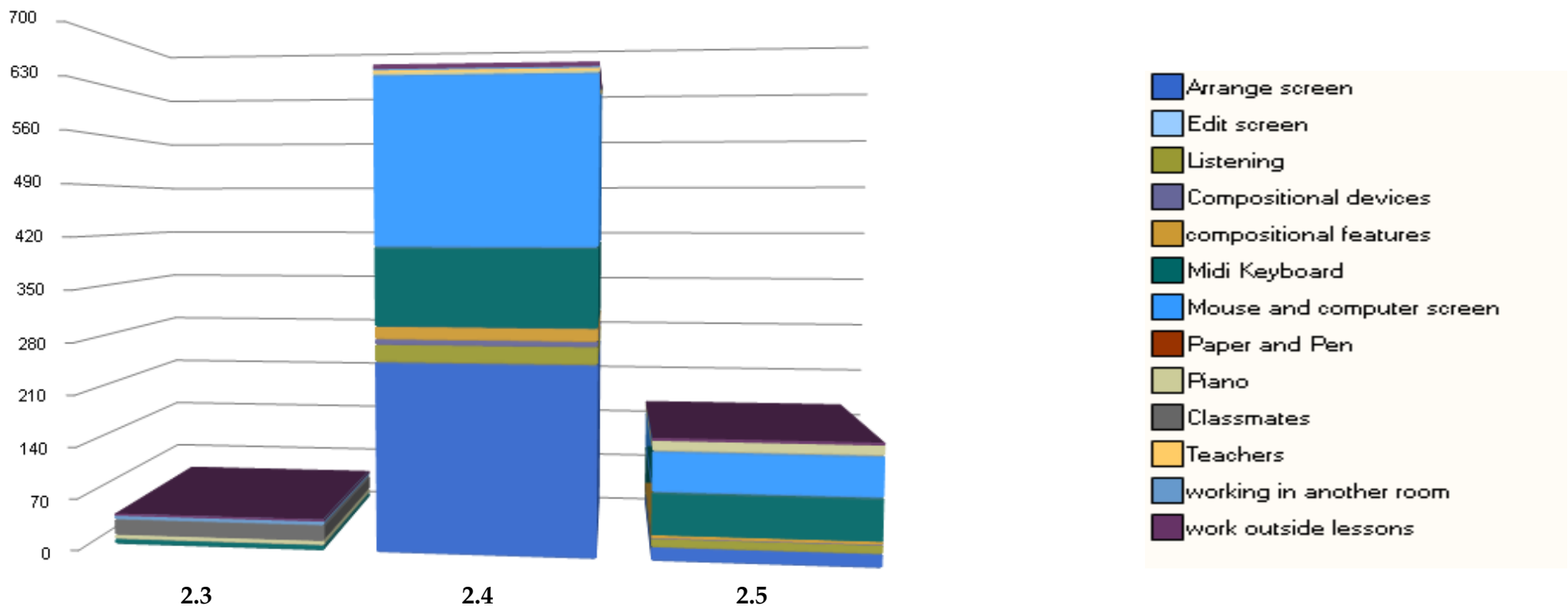

Figure 6.33: Contexts of preparing over time.

The following lesson shows an increase in exploration carried out using prepared ideas (2.4). Closer study of these explorations reveals that five previously composed musical phrases are used as part of these explorations, and while five ideas may seem like a relatively small number, together they make up most of her final composition. We have also previously noted that a significant amount of practising with previously composed ideas takes place during this lesson. Taking these things together, the idea that she may have been practising while exploring during lesson 2.4 may seem to present a contradiction. However, as we look closer, the explanation is that these explorations are in actuality 'finding a new idea' about how the computer might be useful.

I have previously suggested that this activity during lesson 2.4 forms part of Emily's demonstration that the computer is not adequate for her purposes. However, moving forward in time now to Task 2, Emily's explorations are now released from technical interactions with the computer into musical or 'artistic' activity with which she might engage at home. These transformed explorations arise from the change in tools which allow her to interact with the computer in the same way that she might with a piano: with weighted keys, a sustain pedal and high-quality sounds.

For example, during lesson 2.4 Emily explores the computer by looking around the screen and 'just sort of playing the left hand and then kind of just experimenting and seeing what, seeing what sounds nice'[134]. Figure 6.34 shows her playing the MIDI keyboard at this point in the lesson. She is working with the musical idea shown in Figure 6.35 which is taken from her MIDI activity at the time. Figure 6.36 shows that she changes the tempo, thus exploring the use of tempo change on the computer. This musical idea has previously been seen during lesson 2.3 and is shown in Figure 6.37[135]. Furthermore, if we compare Emily's explorations to her preparation across all her composing contexts (figures 6.32 and 6.33), we see that this lesson (2.4) is by far the most significant in terms of her use of preparation strategies with the computer workstation. Thus alongside her shift towards greater computer-based exploration is an increase in preparation using ideas from home. In this way there is a shift from lesson 2.3 in which she 'artistically' explores musical ideas to lesson 2.4 when she explores the technological capabilities of the computer.

[134] EVSR2.4
[135] ECV2.3, Cubase file bar 36-39 MIDI score

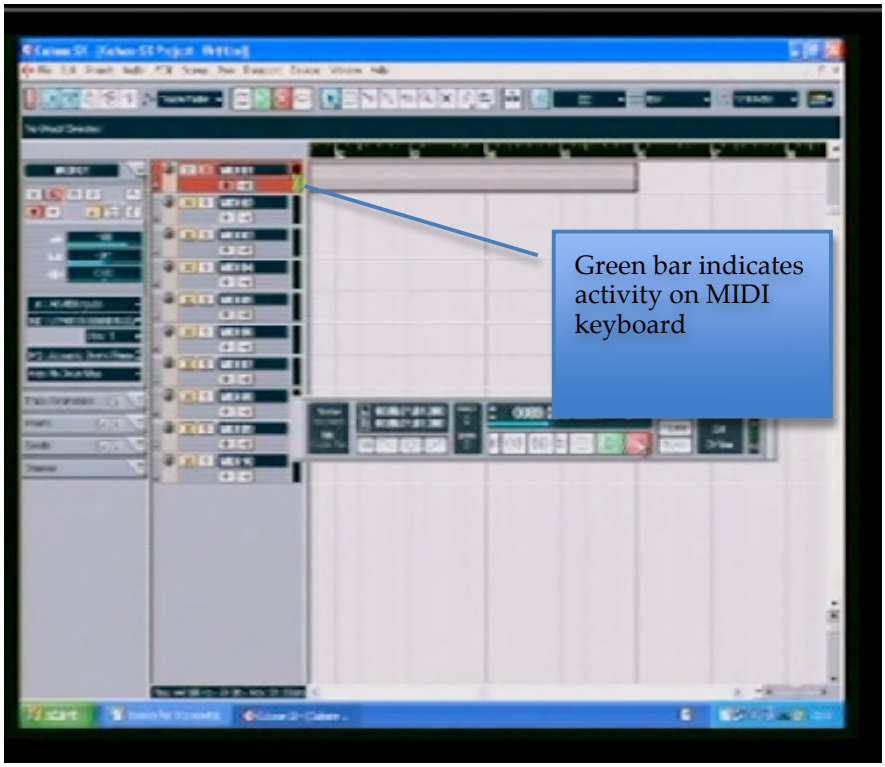

Figure 6.34: Emily working with the MIDI keyboard[136].

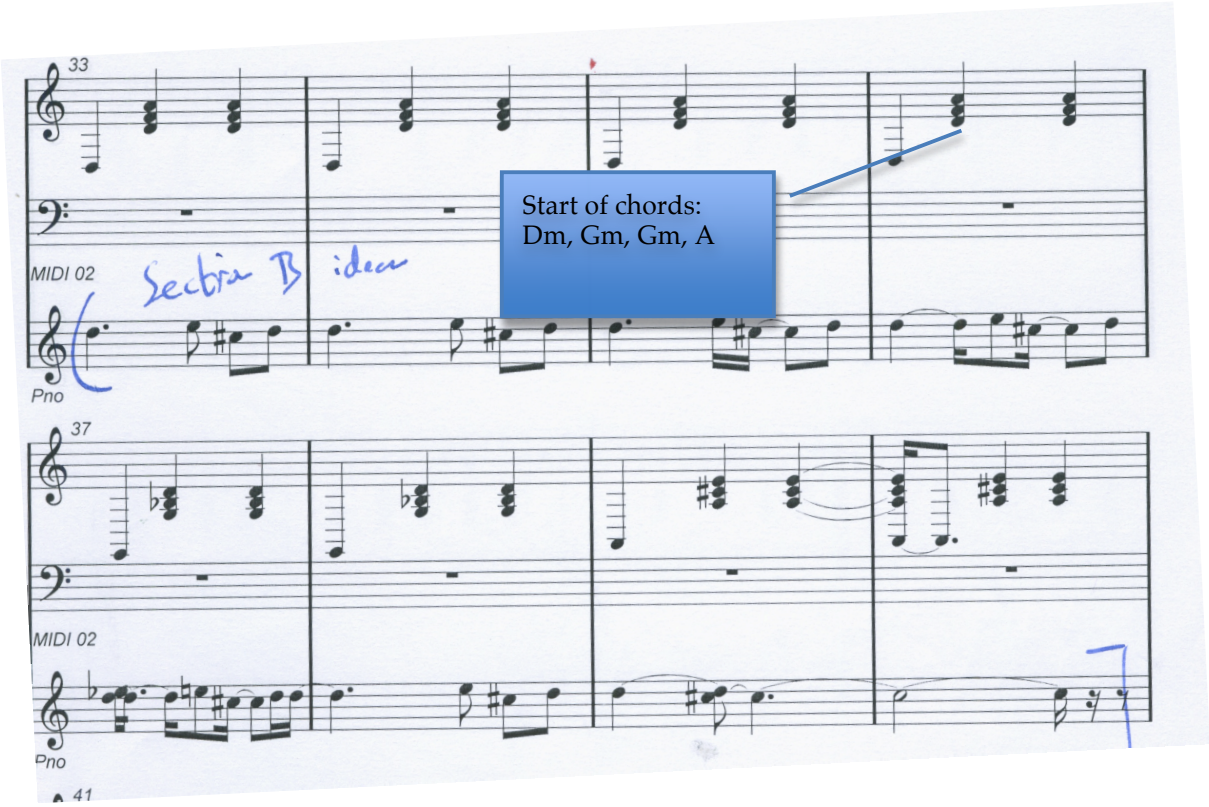

Figure 6.35: Emily's musical idea from lesson 2.4[137].

[136] ECV2.4 52:11:4
[137] ECV2.4 Cubase file bar 51-54 MIDI score

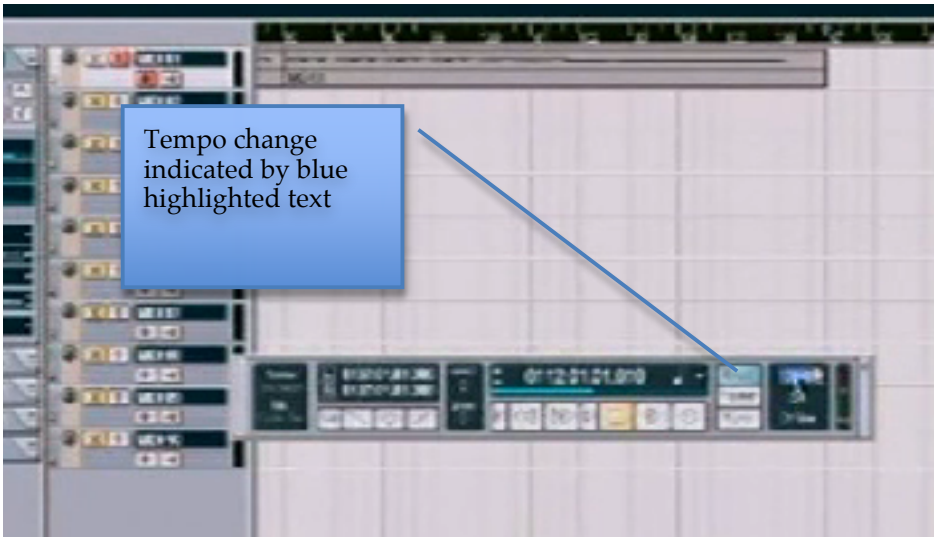

Figure 6.36: Tempo change after this recording[138].

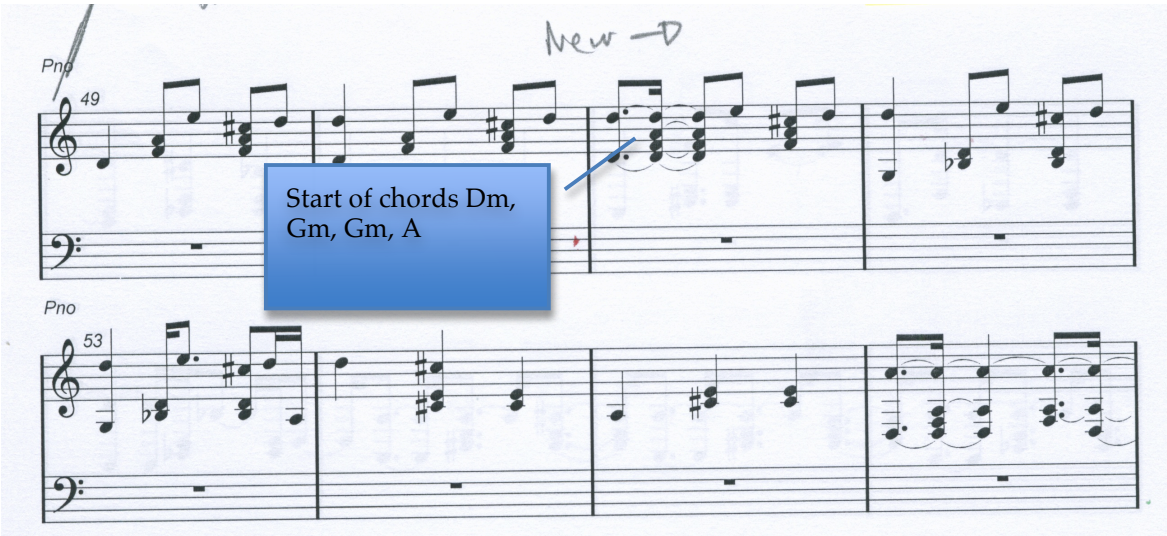

Figure 6.37: Emily's musical idea seen previously in lesson 2.3.[139]

This is particularly noteworthy when considered in light of the evidence that during Phase 3 the reverse is true. During Phase 3 Emily is working with the sequencer program *Logic* and an electric piano, which simulates a real piano and allows her to record, play-back and print musical scores. Within this environment, Emily's use of ideas from home decreases, while her exploration increases. During the interview following the second composing task Emily struggles to describe composing at home in terms other than developing ideas[140].

P: Did you do any work outside of class?
E: Yes! Just sort of carrying on my ideas yeah.
P: What?...making them up or improving them or...?

[138] ECV2.4 56:11
[139] ECV2.4 Cubase file bar 51-54 MIDI score
[140] EIPF

E: I think I kind of made the, worked out the chords on the first session in school, and then I kind of developed them at home, and then I came back to school and I had to realise I had to change them and stuff. So I think I don't really know. I think I might have done something at home or… But I definitely kind of reviewed it and made it better and stuff at school.

In addition, the field notes describe on several occasions how Emily explores musical ideas on the computer during Phase 3. For example[141]:

> Emily is spending a significant amount of time today exploring different musical ideas on the electric piano. She is not playing the same ideas as her use of chords and rhythms is constantly changing. She has not moved since the start of the lesson and it is now 30 minutes in. She appears to be very engaged and has played many different ideas.

The above examples illustrate a way of working that I saw during her composing for Task 2 and which could be described, using Emily's word, as 'artistic': that is, expressive, pianistic and improvisational based on the idea of a melody supported by chords.

Significantly, in this new computer-mediated environment, Emily's artistic way of working also allows her to fulfil the complete demands of the task, not only to work in a style that she has taken from her performance pieces on the piano, but also to record this onto the computer and produce a score. As she works during Phase 3, she continually makes MIDI recordings of her work using the software program *Logic,* which automatically converts them into readable musical 'scores' for later printing. Unlike in Task 1, where the match was poor between her existing way of working, the task and the digital tools, the new environment in Task 2 provides a useful context in which she is able both to work artistically and to fulfil the demands of the task.

A private-shared space for exploration

We have previously discussed the way in which Emily moves from working in a private space to sharing her work with the teacher. A second development, brought about by the change in computer-based tools is that during Phase 3 Emily has no need to negotiate a transition from working in a private to a shared space because the computer-mediated environment is both private and shared.

Figure 6.38 illustrates how the configuration of the technology Emily uses during the second task provides a private space. We have also noted previously that Emily's use of the computer during Phase 2 is a meta-performance that demonstrates her need to use the piano for her work. As well as offering very similar affordances to the piano, in the form of weighted keys, a sustain pedal and high quality sounds, the electric piano and computer

[141] FN3.2

hardware and software also offer a private space for working through the headphones. Significantly, Emily identifies the very scenario of work using a 'good' quality electric piano in a discussion during the first composing task with her friend during lesson 2.3[142].

> E: They should bring in elecrtic pianos cause they just...don't die ...
> F: Yeah, it would be easier because you don't have to tune them
> E: Yeah, and they just live forever, and if they get loud you can just turn them down and I plug my headphones in.

During this excerpt Emily both articulates a preference for electric pianos and also adds that they can be used with headphones. This suggests that she has some awareness of the match between her preferred approach to composing and the affordances that an electric piano offers. Discussing both composing tasks, Emily suggests that she has been able to find new ideas at school during the second task[143].

> E: I preferred composing at school this one (Task 2) because obviously the waltz...I couldn't do anything at school and it was just be going over the things I did at home. But it wouldn't be the same so there was not really any point in doing any music in school. I did much more at school.
> P: Why would you say that?
> E: Because I was able to do more at school, because I was actually able to make new things up rather than sort of reviewing it and reviewing what I had done.

This discussion lends support to the idea that Emily is able to do more exploring during the final task. Taken together with her previously stated preference for using an electric piano, we can surmise that this change points to a resolution of the tensions inherent in the composing context. She can now work on the composing activity itself in her own artistic way throughout every lesson rather than spending time managing the task and the environment as she has done especially towards the end of the first task.

In addition, the Triton keyboard has been used many times by the class teacher for school concerts whilst a Mac computer running *Logic* is amongst the best hardware/software combinations available for music at the present time. As such, these resources are more likely to be seen as 'good' instruments. In this way this system overcomes the deficiencies of the 'bad' system used for Task 1. While in one sense this may present the difficulty of not being able to excuse poor performance, as is the case with her work in the practice room, work recorded onto *Logic* can easily be hidden from onlookers, as we saw above. We can surmise that Emily has some awareness of this from the positive way she speaks about this new environment.

[142] EVM2.3
[143] EIPF

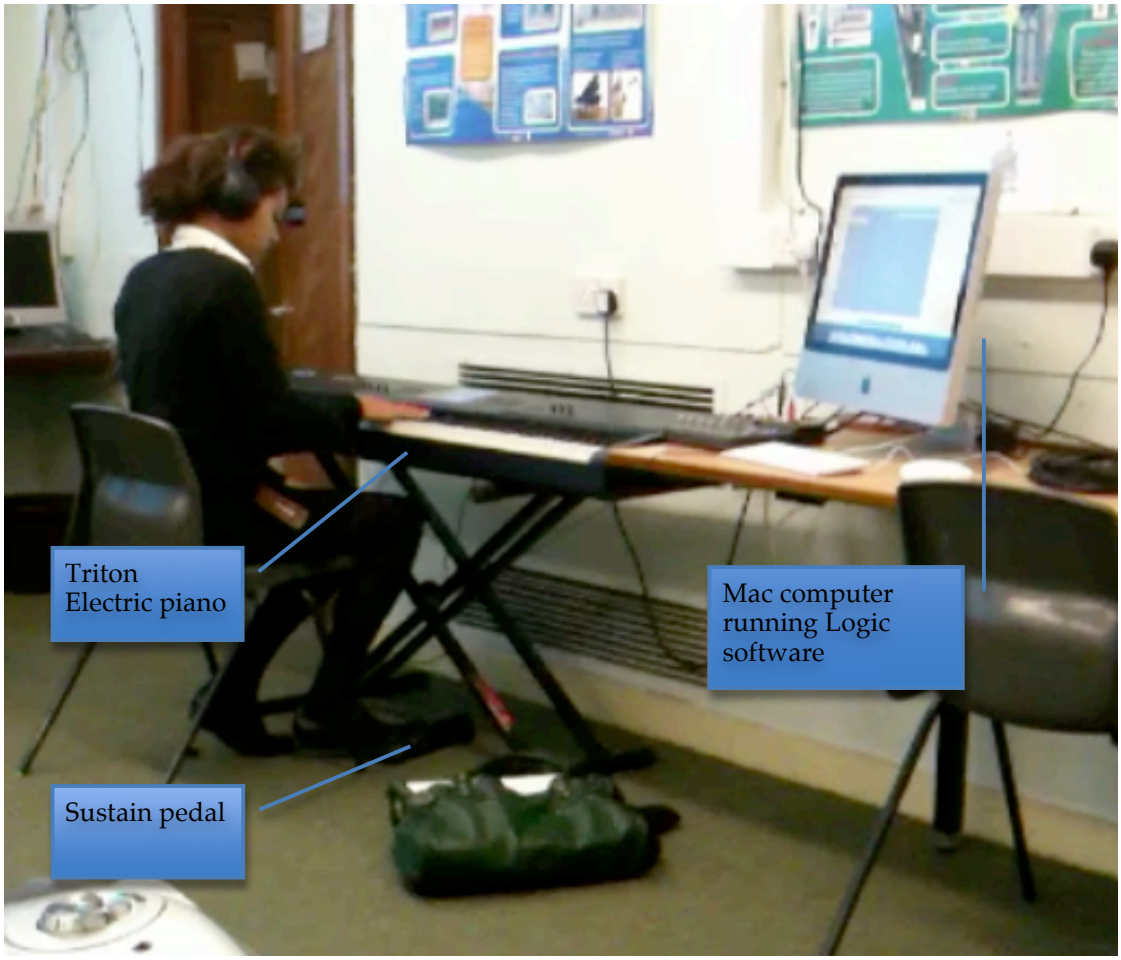

Figure 6.38: Emily using the *Triton*[144] electric piano and Mac computer with *Logic* software,

Thus the match between Emily's requirements and the affordances of the computer-based tools she now employs seems to present a space within which Emily can work. It is possible that Emily's artistic explorations, which we noted in the previous section, arise as a result of this change in her composing environment.

6.3.4. **Summary**

Over the course of the study, I came to know Emily as a competent musician who presents herself as a performer who works for the enjoyment of others, but also as an artist who hides away a more personal and expressive identity and who composes for her own enjoyment. Across Emily's composing process changes in the nature and use of her composing strategies highlight three trajectories that evolve across her composing lessons. Firstly, her pursuit of a more artistic way of working points towards a mastery of the tacit rules of the classroom, which allows her to shape the task according to her own needs and instrumental competence on the piano. Secondly, she appears to move from composing in a

[144] Triton is the model name of the electric piano/workstation. Made by Korg, UK.

personal space, at home, through working with a friend, towards finally sharing her work with her teacher. This development seems to be carefully negotiated through interactions with her friends and with an awareness of the task constraints that impede progress in her preferred way of working. Finally, Task 2 and Phase 3 of the study appear to reveal a transformation of the constraints of the school composing context into a new computer-mediated environment that affords Emily the private space that she seems to require for 'artistic' composing, within a shared classroom context.

6.4. SUMMARY OF THE FINDINGS

At the start of my presentation of findings I noted the tensions between the school's aspirations of looking outward to its local community while tailoring learning to individual students. I noted that at the faculty and department levels the needs of individual students appear to be compromised amid the practicalities of providing extracurricular opportunities, maintaining performances at community events and in the light of the examination criteria that focus on adherence to technical musical features. Set into this context, I presented the first 'waltz' composing task as one which exemplifies a shift from a structured and technical task to one which gives students greater autonomy over their ways of working. Following on from this, I noted how during the second task students still work within the parameters of the examination criteria but now with their own choice of style and features across a shorter time frame and with less teacher support.

Within this setting the findings illustrate how Sam appears to move towards a personal style of exploration and expression, which is reflective of his approach to music outside the classroom. Sam's development is visible in three ways: i) a shift towards 'rule breaking' and exploration through improvisation; ii) a move towards bringing ideas and ways of working into school; and iii) transforming his way of working by employing an adapted classroom environment in which he exhibits much greater control over his own composing process.

Working in the same class, Emily presents herself as a performer who is a competent musician and brings pleasure to others through her music making. At the same time, a more hidden artistic process is revealed, through which she defines a more personal and expressive identity, composing for her own enjoyment rather than for that of others. Her ability to maintain her artistic way of working indicates her mastery of the tacit rules of the classroom, a mastery allowing her to shape the composing task according to her own needs and competences. Emily's developmental trajectory is seen through: i) her shift from

composing in a personal space, at home, through working with a friend towards finally sharing her work with her teacher; ii) her negotiation of the task constraints which impede her progress through interactions with her friends and the classroom resources; and iii) her transformation of the classroom resources to form a new computer-mediated environment which affords her the private space that she seems to require for 'artistic' composing, within a shared classroom context.

Having presented an account of Sam's and Emily's composing processes, which focus on the nature and use of composing strategies as well as changes in their ways of working, the following chapter goes on to explore several themes which emerge from Sam's and Emily's stories and which add to current understanding of compositional development with computer-mediated environments.

7. DISCUSSION: DIFFERENT TRAINS

In the following section I will work through a series of four developmental connections that emerge from Sam's and Emily's ways of working. They are: connecting in institutional space, connecting in personalised space, connecting in emancipated space and connecting in shared space. These 'spaces' are conceptual representations of the qualitative natures of the cultural and social contexts within which Sam and Emily worked throughout the study. Building on the categories that emerged during the analysis process (see 5.2 and 6.2) social contexts describe interactions between people while cultural contexts involve physical tools as well as computer-based tools and conceptual tools. Each is discussed in turn following a separate section heading. Alongside this discussion, each developmental connection is also illustrated as part of an unfolding model which describes Sam's and Emily's computer-mediated development situated in their music classroom. A combined model is presented at the conclusion of the chapter (Section 7.8), which brings together the different connections that emerged during Sam's and Emily's processes of computer-mediated compositional development. I draw on the travelling metaphor of 'connections' to characterise the discussion. Just as physical journeys require movement and 'connect' places together, so the following discussion seeks to examine developmental journeys between spaces.

I have employed the metaphor 'Different Trains' in the title to underline the connectedness of the spaces introduced in the following chapter. This connectedness resonates with the notion of transformation introduced in Chapter 2. Rather than transformation being seen merely as change, in this case it is a process through which a student achieves a new plane of being that makes it possible to see the matter in question (in this case development) from a newly restructured perspective (Vygotsky and Rieber, 1999). Different trains is the title of a string quartet by the composer Steve Reich. The quartet portrays Reich's reflections about his train journeys which took place between New York and Los Angeles during World War II. In the piece he considers that, his Jewish heritage made it likely that these would have been very different journeys had he been in Europe instead of America. Adopting 'Different Trains' as a metaphor seems particularly appropriate as this chapter seeks to weave together multiple stories in a reflective web-like narrative. In a similar way Reich's three movements draw together interviews with Americans and Europeans. As they do so Reich juxtaposes the ideas of freedom, constraints and liberation. Likewise, these themes are all intertwined within Sam's and Emily's stories. Also, Reich's innovative use of recorded

speech as melodic material, made possible by contemporary technologies, resonates with Sam's and Emily's innovations in their own use of digital technologies. Thus, the title 'Different Trains' seeks to highlight significant notions that are developed in the following chapter: development as journeys that connect places together, the weaving together of complex stories, freedoms, constraints and liberation as well as the innovative use of contemporary technologies. Finally the way that 'Different Trains' simultaneously looks back and transforms multiple contexts simultaneously 'through the eyes of history', resonates with the new transformed perspectives that Sam and Emily demonstrate thought their compositional development into emancipated and shared spaces.

Thus, while I will outline the nature of each developmental space in the following sections, it should be noted that these are connected together as the context that surrounds this deeper notion of transformation. This articulation is also commensurate with the different aspects of Sam's and Emily's development, as each one is framed around a verb and describes a practice: mastering and conforming, seeing, transforming and re-connecting. Furthermore, 'connection' also suggests relatedness; each one is in some way concerned with relationships between the students, on the one hand, and aspects of their environment that are implicated in the development, on the other. The reader is cautioned not to understand these connections as 'stages' as there is no evidence to suggest a hierarchical relationship between them. Instead they describe the chronological changes seen in Sam's and Emily's composing processes during the current study.

A personalised context

In the previous chapters, I have considered in some detail the stories of Sam and Emily. We have seen that Sam's composing process appears to move through a progression towards a more personal style of exploration and expression. He first moves from a heavily structured focus on convention towards more exploratory practices. Following this, he appears to work on ways of adapting his work outside school for use in school. This moves on to changing his environment in order to exert much greater control over his composing process. Alongside this, Emily works on mastering the rules of the classroom, towards a point at which she can shape the task according to her existing musical competences. At the same time she moves from working in a personal space towards a final sharing with her teacher. Ultimately, in a similar way to Sam, Emily transforms the composing environment into one which meets her social and physical requirements for the early stages of artistic composing in school. It is appropriate, therefore, that I will directed the following narrative towards what these stories together might tell us about how compositional development

proceeds for music students who work with computer-mediated environments in classroom communities.

At the same time, however, I am conscious that behind each of these stories is a personal narrative: a story of my own. The presence of a third developmental journey, that sits beside those of Sam and Emily is an inescapable aspect of their stories. I have taken every opportunity to ensure that the account of their composing processes is reliable; for example, by verifying my findings with each participant and by exploring alternative explanations. Nevertheless, the perspective I bring, whilst 'taking the role of the other' (Charon, 2001 p104), is grounded in my own personal history and 'situatedness' within the context of being an assistant in the school classroom, a researcher, a student, a teacher, a father, a husband and a son, amongst other things. This spatial and temporal situatedness brings a subjectivity to the previous chapters, which cannot be ignored. Peshkin (1988) describes this situatedness as "a garment that cannot be removed" which can "filter, skew, shape, block, transform, construe and misconstrue what transpires from the outset of a research project to its culmination" (p 17). Scheurich and McKenzie (2005) go further and draw on Foucault to describe our situation as one of being "imprinted by history" within "systems of subjection" and "the endlessly repeated play of dominations" (p 853). In this way our perspective is limited by those forces which govern and shape our own stories. Common to these perspectives is the notion that the lens through which I have approached and seen the composing of Sam and Emily will unavoidably impact upon the things I see. Indeed, if I accept Peshkin's assertion that I cannot "step outside" of my own "garment", then perhaps the only practical response to the impending charge of partiality is to declare my own actions and experiences whenever I see the potential for them to have mediated my account of Sam and Emily. In so doing I am not making explicit connections but attempting to allow readers to see possible connections between our shared journeys, and to decide for themselves if our collective stories resonate beyond my own situatedness. In this way the reader may be empowered to see the context with which I have negotiated meaning during the current study.

As a vehicle to help me to attend to my subjectivities (Ahern, 1999) I have kept a research diary. This can more accurately be described as a scrapbook of thoughts, drawings, meetings, conversations, notes, scraps of paper, books and even the occasional shopping list. I have also blogged on topics I found interesting throughout my research (Kirkman, 2008). Finally, to bring together my reflections across the study I have drawn a river of experience, which focuses on 'life events that have shaped my research journey'. Drawing on this and to acknowledge to the reader possible connections between my own journey

and the stories I have found in Sam's and Emily's compositional development, I will present a series of autobiographical portraits after discussing key aspects of the findings These are clearly marked for the readers attention but feature not as expositions of the developing narrative but rather as opportunities that seek to promote a critical stance to it.

A theoretical context

A further issue I wish to consider before I move into the discussion of my findings proper, is the relationship between existing literature and my perspectives, both throughout the study and now as I write. I say 'perspectives' (plural) to acknowledge that in addition to shaping the way I have seen Sam and Emily, my own journey has impacted upon how I relate to the research literature. My current perspective is not what it was at the start of the research; it has developed. With this in mind, the literature which I have selected to shape the discussion below has a twofold aim.

Firstly, the authors I have selected to frame the discussion together provide several complementary standpoints which I have 'thought with' across the study. It is true that these do not unite to form a single 'unified' perspective from which to view the contribution of the current research. However, it is my intention that juxtaposing several different standpoints will allow us (the reader and myself) more readily to grapple with the complexity of bringing together the ideas which shape the view of development presented in the current research. In so doing, my 'contribution' takes the form of reified knowledge (Wenger, 1998) about how music students' compositional development proceeds but also shapes the discussion; by bringing several ideas together in a discursive narrative, which, when woven together (Cole, 1996 p135) provide the intellectual context for this study. Thus, each piece of literature is a cultural artefact implicated in the mediation of the findings as well as taking the role of informing the discussion. Secondly, I have selected literature which directly relates to the ways in which development proceeds across the study. I draw on the work of Bruner (1996) and Rogoff (1990) to introduce notions of pedagogy, scaffolding and classroom interactions. Alongside this, I present Lave and Wenger's (1991) notion of legitimate peripheral participation as a means to address Sam's and Emily's ownership of the process of composing and their personal compositional development. This notion also serves, alongside notions of formal and informal learning (Fölkestad, 2006), to underpin my discussion of Sam's and Emily's embeddedness within their own personal histories. Finally, I employ Engeström's (1996b) notions of development, which are informed by activity theory, to open up the discussion of development as movement outside 'conventional' or in this case institutional ways of working and movement 'between spaces'. These standpoints are congruent with the theoretical perspective of the current

study, being concerned with the activity of individuals based on their changing abilities to see opportunities for action in their social and cultural environment.

7.1. TOWARDS A DESCRIPTIVE MODEL OF COMPUTER-MEDIATED, CLASSROOM SITUATED MUSICAL COMPOSITIONAL DEVELOPMENT.

In the introduction to this chapter I have reviewed key findings from chapters 5 and 6 and have underlined the needs to situate myself as a subjective participant in the research. I have presented my argument for adopting several key pieces of literature to frame the discussion and have asserted that this approach will serve both to contextualise my own intellectual landscape during the analysis process as well as providing a cultural artefact that will mediate our view of the findings. Moving on from this therefore, in each of the following sections, the narrative moves through a review and discussion of findings in the light of existing literature alongside a series of autobiographical portraits. I will unfold a descriptive model of Sam's and Emily's unfolding processes of compositional development as we proceed. The model presented in the following sections describes four aspects of development: scaffolded development, serendipitous development, computer-mediated development and creative development. Although each aspect of development arises from the findings in the current study, for purposes of clarity each will firstly be articulated before being discussed alongside findings from the current study and existing literature.

7.1.1. Scaffolded Development: Mastering And Conforming By Connecting In Institutional Space

In Section 2.3, I previously introduced the metaphor of 'scaffolding' as a way of describing support which allows students to master tasks that they would otherwise be unable to complete independently (Bruner, 1966; Wood, et al., 1976). This draws on Vygotsky's notion of the Zone of Proximal Development (ZPD), which is defined as

> the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers (Vygotsky, 1978 p. 86).

Together, these theories suggest that students can work in significantly different ways, and at a higher developmental level, when support is provided in the form of scaffolding. We have also previously noted several examples of computer-mediated environments providing scaffolding for students when composing (Hickey, 1997; Dillon, 2004b; Reynolds, 2005; Seddon, 2007; Breeze, 2009; Ward, 2009; Partti and Karlsen, 2010). Bruner (1986) describes the role of the teacher in this transaction as one in which they "remain forever on

the growing edge of the child's competence" (p.77), allowing the learner to achieve ever greater degrees of mastery.

Emphasising the notion that many different pathways are available in the direction of mastery, Rogoff and Gardner (1984) present scaffolding as the process of providing a framework within which the learner, in this case Sam and Emily, can find a solution to a problem. Rogoff (1990) prefers the term 'guided participation' to highlight that the word 'scaffolding' may encourage an understanding which limits the available support to that which occurs as a result of intentional activity by the teacher. Building on Rogoff, and Stone (1993), who proposes that scaffolding is a subtle phenomenon…that "involves a complex set of social and semiotic dynamics" (p.170), Wiggins (2011) further extends the scaffolding metaphor to reflect the fluidity and shared ownership of a composing activity between teacher and learner. Taking these together, the current study takes scaffolding to be a framework within which a teacher provides the support necessary for students to progress towards mastering an activity. This definition does not preclude the mutually constructed nature of the framework, as students may be included in the process of construction. However, the current definition also acknowledges that within a classroom context, support is given to students by the teachers, who have the ultimate responsibility for defining mastery in relation to the task parameters and examination criteria. It should also be noted that the view of pedagogy adopted in the present study is not limited to the scaffolding that a teacher employs. As discussed in Chapter 4, the developing pedagogy of Emma (the class teacher and PGCE trainee during the current research) unavoidably presents a restricted view of the art of teaching. In addition, the focus of the fieldwork was towards students' compositional development. In this context the pedagogy that underpinned this investigation while implicated in the process, was of secondary importance. In this way the findings are restricted to what Emma articulated as her pedagogical decisions.

The findings from the current study suggest that scaffolding in this context occurred in two complementary ways. Firstly, the teacher-designed task can be seen as scaffolding. The task provided rules or constraints that guided students' composing processes towards solutions and which could be viewed as successful according to the examination criteria. This is best exemplified in the findings by the booklet written by Emma, the PGCE trainee, and given to all students as an aid to structuring their composing. Scaffolding, understood in this sense, builds on Johnson-Laird's (1988) finding that constraints, such as structured problems, can help with the decision-making process. Notably, just as students in the current study feel that the booklets limit their composing processes, Allsup (2002) also cautions that scaffolding can threaten a student's capacity to participate in any meaningful way (cited in

Wiggins, 2011). In a similar way, Ruthmann (2008b) presents the findings of a case study of teaching and learning in a music technology laboratory, which suggest that teacher scaffolding in the form of feedback can conflict with a student's intentions. Thus the findings of the current study agree with existing literature in suggesting that, rather than promoting development, scaffolding which introduces inflexible constraints can restrict students' capacities to participate in a meaningful way.

Secondly, scaffolding was provided in the form of the tools, which helped Sam and Emily to complete the composing task. As well as the previously mentioned booklet, students were provided with instruments, digital technologies and information sheets. These tools become meditational means (Wertsch, 1998) with which Sam and Emily were able to engage with tasks that otherwise they would have been be unable to complete. For example, Sam was able to play multiple instruments simultaneously and then listen back to his compositions as a separate activity from performing. This use of tools to provide scaffolding is frequently noted in the education technology literature (Lipscomb, et al., 2004; Paz Dennen, 2004; Brickell and Herrington, 2006).

Institutional scaffolding and student ownership

While provided by the teacher, these tools facilitated a shared ownership, Sam and Emily had a degree of choice in how and when to use the tools available. One could think of this ownership as 'small o' ownership, in that the teacher is still ultimately in authority over the range of options available to students through the rules and resources provided. To further expand this notion of 'small o' ownership, I propose to draw on Lave and Wenger's (1991) notion of legitimate peripheral participation, which describes the process by which learners, in this case Sam and Emily, transform their identities through participation in a community of practice. Several other researchers have recently demonstrated the potential for music classrooms to be understood as communities of practice (Countryman, 2009; Partti, and Karlsen, 2010; Wiggins, 2011) in which students participate in a musical community alongside a more expert practitioner, usually the teacher.

Working forward from the notion of scaffolding discussed above, Sam and Emily's participation in their classroom composing community allows them to develop by working in their ZPD. For example, Sam shows a progression from formulaic 'answers' to the task using waltz devices and features, towards a more exploratory and improvisational use of *Cubase* at the end of the process of composing his waltz (5.1.2). In one sense he is merely completing the work using the scaffolding constructed by the class teacher. However, in a different sense, as he is choosing to use *Cubase* as a means to improvise, he is establishing

his own pattern of working within this scaffolding. Outside school his improvisational identity is firmly rooted in his participation as a band member and collaborative musician. With the digital technology made available by the teacher, in the classroom his identity is transformed into a computer-mediated improviser. Thus in the current study 'small o' ownership describes Sam's transformation as he participates through composing in the classroom community, taking ownership of his process within the limits of Emma's (the PGCE trainee) scaffolding. Wiggins (2011) describes this as enabling the learner to assume responsibility for only those aspects of the practice that, with support, are within their reach (p. 93).

Legitimate peripheral participation also provides a helpful "conceptual bridge" (p.55) between individual development and community development. Just as in the current study Emma's perception of Sam and Emily's ongoing composing activities stimulate changes in her pedagogy and consequently the classroom context, so legitimate peripheral participation helps us to see that their participation in the activity may also lead to a transformation of the community as a whole. This can be thought of as 'small o' ownership of the community itself in the sense that from an individual student's composing activity a teacher may perceive a need for the composing community to change.

Finally, just as changes in Emma's pedagogy allow for the development of the classroom context (5.3, 6.3), the affordances and constraints of this context are subject to the class teacher's capacity to facilitate contextual change. This could be understood through legitimate peripheral participation as the 'degree of mastery' afforded to the teacher. Yet if legitimate peripheral participation highlights that students' involvement in genuine composing practice may be 'small o' ownership, this also reveals that students have control over only some aspects of the activity. It therefore follows that if not all aspects of the activity are owned by students, then, as the 'expert' in the classroom, the teacher has ownership of the remainder. Indeed, it is a common practice for examination coursework submission documents to require teachers to articulate the degree of support students received in completing their submission (Edexcel, 2006; OCR, 2008). This supports the notion that there is a tension between the teachers' and a student's contribution to, and participation, in a composing activity. Thus 'small o' ownership also promotes an awareness of the tension between collaborative composing and examination activities. This returns us to the previously noted danger that scaffolding can intrude on a student's capacity to participate in any meaningful way.

Scaffolded development in institutional space

Figure 7.1 depicts the process of scaffolded development which is visible in Sam's and Emily's composing processes as they were supported by Emma and Val, the class teachers in the current study. The outer frame, representing the school classroom, is given the designation 'institutional space' after Collins' (2005) "solution space" which draws on Newell and Simon's (1972) "problem space" to describe a place in which one searches for a solution. I have chosen the description 'institutional' to reflect the previously discussed notion that activity in this space is limited by the structures put in place by the institutional context, whether directly by the teacher through resources and interventions, or indirectly through tacit structural constraints or examination criteria. I am also drawing a distinction here between the space of the classroom and 'personal space', 'emancipated space' and 'shared space', which are discussed below. Within this space, scaffolded development is depicted alongside a 'point of enabling' This 'point of enabling' describes the place at which Emma perceives and changes her pedagogy in response to Sam's and Emily's composing activities. Her focus at this point is on enabling Sam and Emily, together with the other students in the class, to work in their ZPDs, supported by the rules and tools (Engeström, 1987) she uses to construct the composing context (4.5) as part of her developing pedagogy. During this time significant aspects of the context are the closed nature of the task and the chosen criteria by which compositions will be marked. Notably, neither Sam nor Emily's composing processes demonstrate a similar point of enabling during Task 2 as they are working largely on their own, away from the teacher's support (see 4.6). Finally, the box describing 'emergent contextual affordances and constraints' highlights the way in which the emergent features of the classroom context afford and constrain (Norman, 1993; Gall and Breeze, 2005; John and Sutherland, 2005) Sam's and Emily's actions. For example, Sam's early stages of composing are heavily structured by the class teacher's scaffolding (5.3). This is separated from the point of enabling to indicate that a composing context may also disable, as in the case of Emily and her need for a weighted keyboard. Furthermore, it suggests, as discussed above, that the affordances and constraints which emerge from the construction of the classroom environment, in which the teacher has the ultimate responsibility, may not always be intentional. This will be discussed further in the next section.

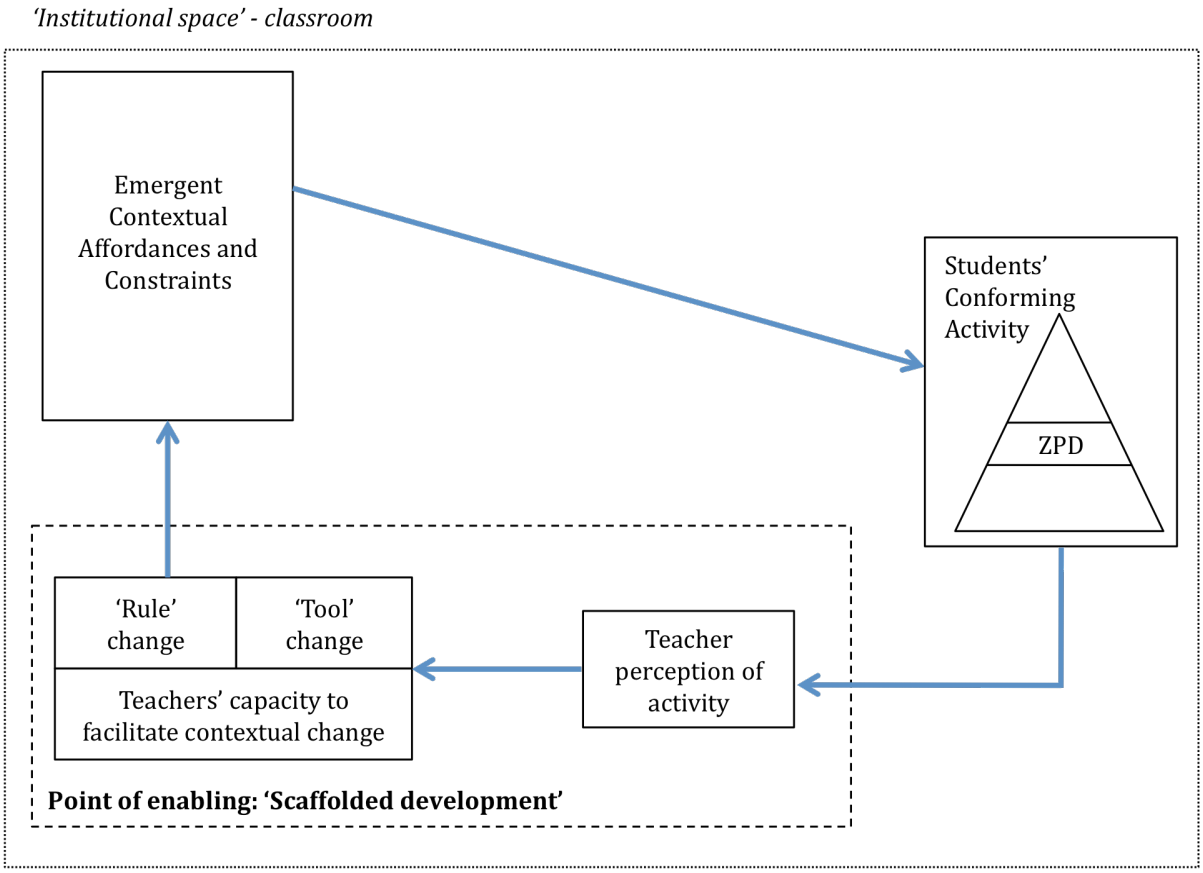

Figure 7.1: Scaffolded development in institutional space.

However, in addition to the process articulated in this illustration, the findings of the current study suggest that both Sam and Emily also explored and developed personal composing spaces. This personal space was observed existing within the classroom community, but in tension with it. This is discussed further in Section 7.5. Before this, however, I will present the first of a series of four acts of positioning, which seek to make clear my own situatedness within musical communities of practice. In so doing, I hope to reveal my own position in the perception, articulation and nature of the changes which are presented in the current research.

7.1.2. My Connections With Scaffolded Development

The four personal narratives in this section are intended to provide an account of scaffolding I experienced through participation within communities of practice. Through these acts of introspection I seek to identify and articulate connections between my own situated self and the model presented in the current study. In particular they demonstrate how my own experiences of scaffolded development may impact on the meanings I inferred during the study. In turn these meanings are expected to have mediated my dialogue with Sam and Emily and impacted upon both their understandings and their descriptions. Thus these descriptions are a key part of the 'confessional content' discussed

in Section 3.1 which helps to address some of the criticisms of ethnographic studies (Tan, Wang et al., 2003).

Mastering instrumental performing

My first act of positioning takes me back to my developing musical self at the age of 7 when I first started to learn to play the cornet. I should add that before this I had briefly taken piano lessons at the age of 5. This involved visiting an old 'school ma'am friend of the family who reduced me to tears on the second and final occasion. Following two early lessons that were eminently more successful than these earlier piano experiences, I became hooked on cornet playing and formed a strong friendship with my instrumental teacher. This experience shares similarities with my understanding of Emily's unhappy lessons with her early instrumental teacher. As the time and Associated Board grades passed by, I soon found myself progressing through the ranks of school and town brass bands, concert bands, brass ensembles, swing bands and also playing in our local Methodist church band. The church I attended with my family had an active youth group which, amongst other things, organised a youth band. The main purpose of this was to provide music for church services that were organised by the young people once every month. The popularity of these events meant that as our church music group grew, so did our need for a bass instrument, as well as my frustration with not being able to sing and play the cornet at the same time. In a similar way, Sam and Emily both found that they were initially unable to use their own instruments during composing in the classroom. By now I was also singing regularly in my school and town choirs. Having been duly provided with a bass guitar as a Christmas gift, I soon started to become more deeply involved with church music, probably somewhat inevitably considering my brother's position as the leader of the group. In a similar way, the current study notes the significance of Sam's and Emily's experiences of music making with their families. My love of piano playing grew during this time as I took advantage of the privacy of most Sunday evenings, when my family were out of the house at church, as my opportunity to compose with our piano. Following the example of several others in our town youth band, by experimenting with chords and shapes, I was able to construct songs and melodies which drew on musical ideas gleaned from my different band and choir experiences; but nobody ever heard them. This event shares a similarity with Emily's experiences of exploring ideas as she composed in private at home and on her piano.

My musical participation continued to increase in school through GCSE and the related obligatory school production bands. During these studies I also bought myself a guitar so that I could more quickly put together chords into patterns and these patterns into songs. Alongside this, through our school's music technology resources I finally came into contact

with a world where my piano explorations discovered the new possibilities for which I had been looking. Each new sound, each new instrument, each new effect available through the keyboards, sound modules effects processors and mixers, provided inspiration that I consumed and which grew into some new musical idea which took forward my band heritage into a new age of electronic music making. Recording to four or eight tracks, working at every opportunity on my own in the studio, I took it upon myself to learn how to piece together completed versions of the songs I had imagined at home. Suddenly they became real and something I could share. These experiences at school share similarities with the way in which Sam and Emily both appear to experience the way in which technology can suggest new possibilities for composing. Then, in a class of three during my A-level studies I was finally introduced in a meaningful way to the world of classical music, in particular through the work of Haydn, the song cycles of Schumann and Schubert and of course Bach harmony. Having now discovered the doors that a deeper understanding of Western classical music theory could unlock, I began to long for a deeper understanding of what I was playing to improve and develop my compositions. Thus all of these experiences culminated in a successful application to read music at Durham University. This perspective can be seen in the way conventional musical devices and features emerge as a key aspect of the context of Sam and Emily's composing processes.

Situated in a virtual community

Later, as a trainee teacher during my PGCE course, along with the other trainees, I was given the opportunity to use my musical expertise to produce a teaching resource. Drawing on my growing knowledge of music technology, thanks to some degree modules and several computer projects, where the challenges of student finances forced an innovative approach to home recording, I chose to create a solution to a local school's music technology needs. The head of music was keen to use the school's new ICT suite for music. The school was in a socially deprived area just outside Sunderland and as limited finance was available, the computers were not equipped with any additional musical hardware or software, just a mouse, a keyboard and some speakers. Using the internet (in its early days), I discovered a free download[145] that would not only allow students to use musical notation, but would also let them piece together melodic ideas that had been pre-recorded into the computer. As well as creating a set of digital resources for use with this system, I produced a booklet of instructions which guided students and teachers through the software

[145] *Allegro*

programme. This experience can be likened to Emma's (the PGCE trainee) creation of the booklet that guided students' composing processes.

Conforming within an institutional community

Following my PGCE course I returned to the school in which I had previously been a student. Now as a teacher I progressed through the roles of teacher, assistant head of department, assistant head of year and finally moved to Essex as I became the head of a music department. Through each of these roles I increasingly felt the need for music making to be made accessible not only to those who had the privilege of instrumental lessons and consequent instrumental abilities, but also to those who had musical ideas that they could not realise through formal instrumental music training. Because of my own experiences of trying (and failing) to play what I heard on the piano, I identified with students who had not had instrumental lessons. As leader of a music department I began to see that meaningful music-making opportunities were all too often only available in school to those who could pay. Furthermore, I saw how in some cases the suggestion that students could 'make music a hobby' beyond 14 could be a school management strategy for directing more able students toward what some might call 'more academic' subjects.

The resulting challenge of helping 30 GCSE students, many of whom had little of no instrumental ability, to meet very specific examination criteria required a progressive, flexible and informal approach, which ran counter to the conservative environment of the school in which I worked. This school's restrictive environment is epitomised by a comment made by a member of the senior management: 'some students have to be bullied into getting their work done for their own good'. I was subsequently set the task of sitting down to devise on a single sheet of A4 paper, a table that clearly depicted where a student was in their composing process and what they would have to do to *make* their work achieve the next grade. While the notion of scaffolding has many positive aspects, the danger of this version of scaffolding to music education was clear. While success could be achieved by forcing all students to follow the same developmental pathway, enforcing this approach would threaten to undermine the nature of music as a creative process of meaning-making and would remove the potential for education to promote democracy, social justice and human progress. My experience of feeling constrained into conforming in this way can be linked to my understanding of the school context in which the needs of individual students appear to be subjugated to the school regime. In turn it shares similarities with my understanding of Sam's experiences of feeling constrained by the school and department regime, as well as Emily's apparent negotiations concerning the constraints of the composing task.

In this way, my experiences of scaffolded development share several links with my understanding of the connections between mastery and conforming in institutional space as a part of Sam's and Emily's compositional development.

7.2. SERENDIPITOUS DEVELOPMENT: SEEING CONSTRAINTS AND CONNECTING IN PERSONAL SPACE

In the previous section I discussed notions of scaffolded development in relation to the current study. I have also suggested that the concept of legitimate peripheral participation helps us to understand Sam's and Emily's composing processes as existing in tension with their own developing competence and the scaffolding provided by the teacher. In the current study this scaffolding was made visible in the form of constraints, which guided the process of composing, and through tools that mediated students' composing processes. At the same time it should be remembered that the extent to which the teachers' pedagogies were both capable and visible in the current study was limited by the status of the main class teacher as a PGCE trainee. I used the notion of legitimate peripheral participation to reveal how students can be seen both as full participants in the process of composing while at the same time having a 'not quite full' ownership of this process. This I have called 'small o' ownership.

Taking the lead from Sam's and Emily's composing processes, I will now draw on notions of informal learning to explore how this notion of 'small o' ownership can help us to understand their work in a personalised composing space. The findings in the current study suggest that this personalised space is a context in which students draw on their previous experience and explore ways of working within the institutional classroom space. At the same time, the meditational interactions of teachers and peers in this personalised classroom space means that this space is still located firmly within institutional classroom practice.

7.2.1. Personalised Space And Student 'Ownership': The Informal And The Formal

Several studies of music-making in secondary music classrooms highlight the importance of improvisation as a feature of students' own composing processes (Burnard, 2000b; 2002; Brown and Dillon, 2007). In Section 5.3 we saw that Sam's tendency towards improvisational ways of working underpinned his progression from product-focussed and paper-based working, towards a more exploratory computer-based process. This change

was evident in four ways: i) through a decline in the explicit use of musical devices and features; ii) in the increase of recording, judging and crafting in a recurring cycle that characterises his computer-based working; iii) an increased focus on the computer screen representations of his composition; and iv) an increased focus on playing. Alongside these changes in Sam's ways of working, the context within which he worked also changed from paper-based exercises to working with *Cubase* on the computer. This computer-based process provided him with the tools with which he could develop a more personalised way of working (5.3), hence the designation 'personalised space'. The label 'personalised space' also reinforces the notion that not all of his work in this computer-based context was 'visible', either to peers or to the teacher. The more private nature of computer-based space is illustrated well in Emily's conversations with her friend noted in Section 6.3 where she negotiated when she will perform her composition to her friend. At the same time, Emily's own explorations on the piano demonstrate the importance of exploration as part of her way of working. For example, in Section 6.3.1 I demonstrated how her artistic approach to working involves exploring ideas on the piano.

Drawing on Wright and Kanellopoulos's (2010) suggestion that improvisation is an informal music education process, Fölkestad's (2006) notions of informal learning provide a basis for a discussion of Sam's and Emily's exploratory composing in their personalised spaces. Building on this notion it is possible to propose that Sam's and Emily's composing processes can both be understood as informal. Thus, as Fölkestad identifies four ways in which the terms 'formal' and 'informal' are employed in the literature, so these serve to highlight different aspects of the context one might consider as 'personal' for Sam and Emily. In turn this will help to reveal aspects of how Sam's and Emily's compositional developments proceeded.

A physical context

Firstly, 'formal' is used to describe a physical context within an institution, such as a classroom or practice room in a school. According to this definition, 'more personal' and 'informal' would be at home, whilst 'more formal' and 'non-personal' would be at school. As the current study is concerned with compositional development in classroom communities, using this characterisation, all learning is more formal. This is helpful to an extent, as it highlights Sam and Emily's composing which took place at home. For Sam this was at the start of his work on the computer (5.2.2) when he struggled to translate his waltz ideas into a form for use in school. We also see this in Emily's composing process through her explorations which took place at home on the piano (6.2). This distinction allows us to

see how the tools and people available in these different locations contributed to Sam's and Emily's classroom composing processes within their personalised spaces. For Sam, the presence of his friend and his instruments helped him to improvise musical ideas. While, for Emily, it is the presence of a good piano away from her peers and the teacher, which allowed her to explore. This characterisation also reveals the significance of their previous experiences of composing at home. For Sam, this was working with his friend, his father and instrumental teachers. For Emily, this was when she composed on her own, at family gatherings and for her instrumental teacher. In both cases the contrast between their ways of working in school and at home highlights the restrictions placed on their approach by the physical context of the school classroom, and reveals their personalised context as one in which they avoided the structures or constraints of the classroom. In Sam's case he became aware of these constraints when he tried to translate his musical ideas from home to the computer-based environment provided at school. For Emily, it seems from her comments that she was acutely aware of the restrictions of working at school when she tried to use the MIDI keyboard to play her piece (6.3). Yet we have also noted that this can be considered a rhetorical use of the computer to encourage the relaxation of the rule that 'she has to use the computer'. In either case, it seems that she had some awareness of restrictions placed on her composing process by the school context, either in terms of the computer or of the rules and the computer. Thus it appears that both Sam's and Emily's personalised space allowed them to become aware of certain constraints when working in the classroom. I will go on to show how these are significant in that they appear to have provoked developmental changes in their respective ways of working.

Learning styles

Fölkestad considers learning style to be a second way of distinguishing between formal and informal learning. According to this classification, the nature and quality of the learning process is the key consideration. Examples of informal practice include: learning to play by ear rather than through written music (Fölkestad, 2006), learning in groups according to individual need (Green, 2001) and learning by listening and copying recordings (D'amore, 2009). However, Nettl (2007) cautions that modes of learning should not be thought of as informal solely on the basis of their difference from traditional Western practices. Thus characterising Sam's and Emily's work in this way is not unproblematic. Nevertheless, for our purposes in a music classroom within the UK, it can be asserted that traditional Western practices provide a strong guide for the 'formal' in this context. In this sense, Sam's later improvisational approach can be thought of as more informal on the basis of his use of recording and listening as well as his move away from the notation-based worksheets

initially employed by Emma to help structure the composing process (4.5). By extension, his personalised space is one which he avoided the scaffolding of the teacher's worksheet and tended instead towards aural exploration and improvisation. Significant at this juncture is the finding that Sam's difficulty in translating his musical explorations at home into a form that he could use at school on the computer provoked a significant development in his overall way of working. It was in his personalised space, at the point of discovering that the computer would not allow him to translate his ideas, that his approach to improvisation was transformed into an exploration of the potential of the computer. Notably, alongside this I observed a shift away from teacher-mediated composing and towards collaboration with his peers (5.2.3). This tendency towards work with others is also consistent with the findings in other literature on informal learning styles (Jaffurs, 2004; Green, 2006; Westerlund, 2006). Alongside this, it appears that Emily's personalised space also tended towards the informal in that her approach inclined towards exploration. This is seen in her final composing task as she only used the computer along with the electric piano (6.2.3) to explore her musical ideas. As this exploration took place in a transformed environment, this will be discussed further below. However, at this point it is enough to note that she experienced and becomes aware of constraints in the classroom context, which limited her improvisational composing style. This understanding of informal therefore allows us to see that both Sam's and Emily's personalised spaces were characterised by more improvisational and exploratory ways of working.

Student 'ownership'

A further insight into Sam's and Emily's personalised composing spaces may be found in Fölkestad's (ibid.) third classification. He observes that informal and formal learning are used in the literature to identify the ownership of an activity: '*what* to do as well as how, where and when?' focusing on didactic teaching (formal) versus open and self-regulated learning (informal) (p142 brackets mine). I have previously noted the difficulties involved in discussing 'ownership' within the classroom. However Fölkestad also proposes 'formal – informal' (p143) as a continuum rather than a dialectic. Thus we can continue to discuss ownership in these terms. Alongside Emily's propensity from the outset towards playing by ear on her own at the piano, which underlines her own tendency towards a more informal learning style, in Section 6.2 I presented evidence that she often 'made stuff up' after school, by ear and through experimentation. While discussing her composing at these times, she noted that the music she composed outside school was 'not really for anyone' and that 'music in school involves playing other people's music'. She lamented that in school 'you have to use passing notes and…auxiliary notes even if you don't want to' (p105). Thus,

Fölkestad's notion of informal and formal learning as a way of identifying the ownership of an activity reinforces the idea that Emily's way of working outside school can be thought of as informal. However, we can also note that her ways of working inside school in the practice room with her friend (6.3.2) and her attempts to practise rather than composing on the computer, demonstrate an informal approach within the classroom. They are self-regulated activities and yet they were still mediated by the teacher's scaffolded structure. It is this self-regulated teacher- and peer-mediated space that I consider to be 'personalised' as it remains a space individual to Emily. This contrasts with Sam, as Emily built on her previous experience of piano playing outside the classroom, whereas he was forced to transform his way of working. While it could be argued that some compositional development occurred when Emily worked on the computer during Task 1 (6.3.2), ultimately her explorations in this personalised space were similar to her way of working outside school. In this way, Emily could be seen as 'owning' the composing activity, or working almost entirely informally, apart perhaps from having to use certain musical features such as passing and auxiliary notes. As with Sam, Emily's personalised space existed still within the institutional space of the classroom. Her work was still within the constraints of the teacher's pedagogic structures, namely, the rules of the task and the tools available in the classroom. Thus for Sam and Emily, their personalised space can be characterised in terms of their greater ownership. This involved using both existing and transformed ways of working as they still had to work within the confines of the classroom context.

Learners intentions

Finally, Fölkestad notes that, in the literature, formal and informal are used to describe the intention of the mind 'towards learning how to play or towards playing' or 'within a pedagogical or a musical framework' (p.142). In this sense, both Sam's and Emily's work in their personal spaces inclined towards the more informal. As I have previously noted, when attempting to translate his ideas from outside school for use on the computer, Sam saw the constraints of the computer as a new opportunity for exploration. This allowed him to personalise the computer-based composing process, and also to remain within the parameters of the task set by the class teacher. If we relate this to Fölkestad's fourth notion of informal learning, then Sam's shift of focus can be viewed merely as playing with the computer rather than learning how to compose. In a similar way, Emily's use of the piano repeatedly to play, and make small improvements to, a composition which she had previously composed suggests that her focus was on the activity of playing and composing rather than learning how to compose. At the same time, as we have previously noted,

Fölkestad also suggests that 'formal – informal' be regarded as two poles of a continuum. Thus, it can be argued that both Sam's and Emily's compositional processes contained features of both the formal and the informal, with Sam's process becoming more informal as he discovered how to exploit the improvisational potential of the computer. For Sam and Emily, their inclination towards 'composing' by improvising rather than 'learning how to compose' within the teacher's original framework reveal their tendency towards the informal within their personalised spaces.

Notably, with Sam and Emily, a common aspect across all these notions of formal and informal learning is that development existed as an avoidance of the conventions of institutional contexts: what we could call 'culture' defined in terms of the rules and tools that exist within a particular context. In terms of their physical contexts, developmental progress was a tendency towards seeing constraints that conflicted with their home environment. Development in learning style was a tendency to see the exploratory and the improvisational rather than notation or devices and features. Development of their ownership can be seen as greater self-regulation of their ways of working within the confines of institutional space. Finally, development of their intentions tended towards composing by improvising, or composing in 'real-time' (Bailey, 1993) rather than learning how to compose.

No conclusions may be drawn due to the small-scale nature of the current study; however, it is possible that an aspect of development within a personalised space in a computer-mediated classroom context is that it may proceed as an increasing ability to be able to find ways of composing that 'work' within the limitations of a particular institutional culture. I have chosen to call this 'serendipitous development' to reflect the confluence of factors necessary for Sam and Emily to achieve moments of discovery, which allowed them to deepen their ownership and transform their view of the composing context. Thus serendipitous development is that which occurs as a result of personal discovery within the constraints of institutional classroom space. This discovery may be related to the physical context, learning style, ownership or intention.

Serendipitous development in personalised space

Figure 7.2 draws on the previous discussion to illustrate the process of serendipitous development as it occurred in Sam's and Emily's composing processes. Having noted the significance of the constraints and affordances, which emerged from the context of Sam and Emily's composing activities in Section 6.2.3, their previous experiences are now revealed to be noteworthy. Within students' personal spaces, points of discovery are understood to

proceed through serendipitous development, that is; moments when a student's previous experiences and the context within which they work match to produce an opportunity for exploration that may transform their approach and move their composing process forward. We have previously seen that students differ in the way they perceive and experience contextual constraints (Delorenzo, 1989; Burnard, 1995; Gall and Breeze, 2005). In this way, the connection made between their previous experience and their context relies upon a 'serendipitous' match between these factors.

This occurred for Sam when his exploratory way of working was transformed into an exploration of the computer (5.3). This process was mediated for both students by interactions with and between peers and teachers. For example, Emily's composing process was mediated by the teacher's insistence in the use of passing and auxiliary notes and through her work with her friend. In addition, interactions between the teacher and Sam's and Emily's peers can be inferred from the discussions noted throughout the findings. For example, when Emily's friend sought permission to add additional sections to her piece (6.2). However, as the focus of the current study is on Sam's and Emily's composing processes, this inferred interaction is indicated with a dotted line. Calling this context 'personalised space' indicates Sam and Emily's greater ownership of this aspect of their development within institutional classroom space. The lower of the two outgoing arrows indicates a tendency towards convention, which moves them towards the teacher's scaffolding; seen in Sam's use of the computer for composition one. If the teacher perceives this work, then they may respond by transforming the scaffolding and context, in turn enabling students to progress further. This is seen when Val, the class teacher, restructured Sam's notational work to provide additional support as he began his introduction and coda (4.5). Finally, the upper of the two outgoing arrows indicates the avoidance of convention. We glimpse this in Emily's rejection of the task-based constraint that 'she must use the computer to complete her waltz' (6.3) and which is discussed further below. Personalised space is illustrated as a small aspect of institutional space as well as with call-out box to emphasise the notion of a student's 'small o' ownership over the process and to assist with visibility in the final combined model.

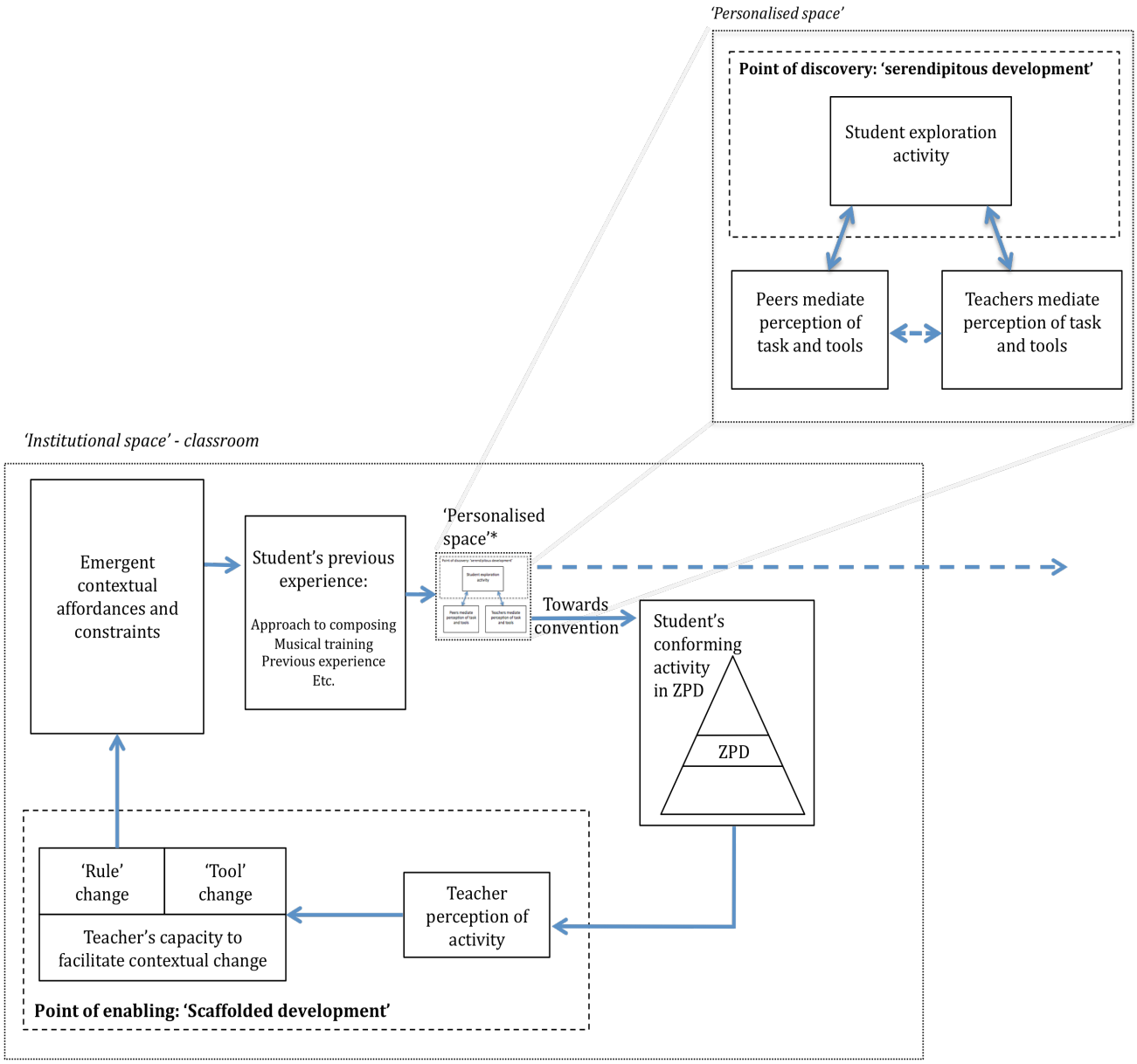

Figure 7.2: Sam's and Emily's personalised composing space within the institutional space of the classroom.

In addition to the features of Sam's and Emily's composing processes discussed above, over the course of the study both students engaged in an activity I have called 'rule-breaking' which allowed them to work in what I have called 'emancipated space'. Emancipated space contrasts with the previously discussed institutional and personal spaces, as it does not exist within the limitations of institutional space. However, before moving on to this, I will present the second act of positioning which situates my own stance towards the learning contexts within which Sam's and Emilys' personalised spaces became visible.

7.2.2. My Connections Within Personalised Spaces

In this section I present two narratives that exemplify my experience of becoming aware of constraints and, as a result, also perceiving opportunities for moving beyond them. In each case they reveal parallels between my own experiences and the developmental connections of Sam and Emily within their personalised spaces.

Seeing the constraints of notation

One of the significant things I recall about my time as an undergraduate music student at Durham University was a course by Jonathan Stock on 'Music in Culture and Society'. In this we explored the central tenet of John Blacking's book 'How Musical is Man' (1973), which investigates the relationship between music and culture. As part of this course we were set the task of transcribing music from across the world, as well as music from within the Western classical tradition. It came as no surprise that the Western classical system of notation was not well suited to working with many forms of music. What came as more of a surprise, was the extent to which it fails to capture many of the nuances of Western popular music, jazz, and even music from within the Western classical tradition. Once I began to see these constraints of Western notation, such as small pitch fluctuations and rhythmic shades which underpin the 'groove' (Shepherd, 2003) the many possibilities outside those of my 'Western classical self' became clear. In addition, this allowed me to come to terms with a tension I had felt between the formally trained cornet player and the popular musician who was a largely informally educated guitar and bass player. The need to notate my ideas, which had been present since my earliest sessions at the piano, now restricted my perspective less. The world outside of the five-line staff became plain to see, and I came to see technological solutions as the more accurate, and certainly more helpful, means of taking down my ideas. This experience can be likened to what I have described as Sam's and Emily's moments of discovery through which they realised opportunities for expansion into ways of working which lie beyond the classroom. Just as I saw 'the world outside' the five line staff, so Sam and Emily became aware of 'the world outside' the classroom, as defined by the task and the structure of the tools available.

Writing and 'accepted' ways of working

A further example of experiencing and becoming aware of constraints, in my own development, arises from the process of writing, both for this study and also on blogs (web-logs), a process which was concurrent with the present research[146]. Having little previous experience of work in these areas, at first I struggled to come to terms with how such text might be constructed. Where was the space for my own thoughts? How should I bring in others' ideas from the literature? How can one synthesise two similar ideas? My explorations of these, and many other questions eventually led to a much deeper understanding of the expectations about what it means to write at this level. At first I could not see the boundaries which helped to define writing in either medium, and which made writing accessible to those without my perspective on what was being said. However, over time I began to be aware of some of the expectations of readers that, in turn, made ideas easier to communicate; for example, signposts and summaries in academic writing, hyperlinks and more informal language in blogs and focused paragraphs in both. As I progressed, and as these constraints became visible to me, they became useful in helping me to develop both my ideas and my writing. Exploring and gradually seeing some of the constraints of each context enabled me to discover my own approaches to writing for these media. Just as my exploration of the new medium of a blog involved a process of serendipitous discovery, so too it appears that Sam's and Emily's work in digital environments led to an unanticipated yet growing awareness of the opportunities available to them. Thus my experiences of finding new understandings of music and writing share similarities with Sam's and Emily's connections in their personal spaces; what I have called serendipitous development.

7.3. COMPUTER-MEDIATED DEVELOPMENT: CONNECTING IN EMANCIPATED SPACE

In the previous sections I have illustrated how Sam's and Emily's composing processes develop within institutional and personal spaces. In institutional space they developed by means of the scaffolding provided for them by the class teacher. In their personal spaces they developed serendipitously, through opportunities for exploration which emerged in response to contextual factors and their previous musical experiences. If these explorations led to composing within institutional space, then their teachers sometimes perceived their

[146] Blogging was an activity I engaged in as one of several reflective tools to catalogue my thinking throughout the current study.

work. They subsequently adapted the scaffolding they provided to better support the students' different approaches to composing. In the following two sections we will explore a further progression observed in the current study. Sam's and Emily's composing processes suggest that when students work in their personalised space, this can lead to composing which falls outside of the existing 'institutional space', in this case the classroom, and moves into what I have called 'emancipated space'. The term 'emancipated space' is adopted to highlight the distinction between personal space, which exists within institutional space, and the conceptual space that exists outside institutional space. Sam and Emily established this new 'emancipated space' after becoming critically aware of the constraints imposed on their composing processes. 'Emancipation' is concerned with concepts such as freedom, liberation, critical awareness, equality and transfer of ownership (Memidex, 2012). Its Latin root is 'ex manus capere'[147] which was used in Roman law to refer to a child gaining freedom from the legal authority of their parent. (Harper, 2012). This notion of freedom from authority resonates with Sam's and Emily's experiences in their computer-mediated environments during Phase 3. As well as Abraham Lincoln's Emancipation Proclamation, an executive order which proclaimed the freedom of slaves in America in 1863 (USNARA, 2012), 'emancipation' has also been used in reference to freeing oneself from conventional customs (Harper, 2012). In this way the term 'emancipation' draws attention to notions of ownership and critical awareness of conventions. In the current study this resonates with 'ownership' in Sam's and Emily's composing processes and the 'conventional customs' in the institutional space of their music classroom.

7.3.1. **Towards Emancipated Space**

In developing the concept of emancipated space, I am drawing on Engeström's notion of development as 'breaking away and opening up' (Engeström, 1996a). Building on recent work in dialectics and cultural-historical activity theory, Engeström suggests three challenges to the theories of Piaget and Vygotsky, which put forward the view that existing models of development constrain it within normative systems of mastery and control. Firstly, Engeström suggests that development should be viewed as a partially destructive rejection of the old. Secondly, he proposes that development involves both collective and individual transformation in synergy. Thirdly, he asserts that development should also be viewed as horizontal movement across borders. These will be discussed in turn. In this section I will focus on the individual rejection of the old. Then the discussion will broaden

[147] Literally to 'take out of the hand' from *ex* (out) *manus (*hand) *capere* (take)

out into Section 7.7 where we will examine the notions of collective and individual transformation as well as movement across borders.

Development as a partially destructive rejection of the old.

Engeström notes that most theories of development:

> …depict development essentially as a progression from a limited toward a broader and more inclusive mastery over the environment and the self. As such, development is a positive process. It may entail problems and contradictions, but overall it is a benign process of achievement. While this affirmative aspect is surely important, exclusive focus on it makes developmental theory unable to deal with destruction of the old as an equally important aspect of development (1996. p. 128)

In other words, Engeström is suggesting that as well as working within the constraints of the environment and the self, development may also involve destroying aspects of the environment, the self or both. The kind of destructive rejection to which Engeström refers, seems to be reflected in Sam and Emily's work over time in their personalised space, when this results in composing which falls outside either the environmental constraints of the classroom or established patterns of working in this context.

By way of example, I will first turn to Sam's construction of a new environment for composing, presented in Section 5.3. Throughout Sam's discussion of his music-making in school, it was noted that he felt restricted by i) the lack of freedom to explore musical genres that are important to him; ii) the constraints imposed on collaborative working; and iii) the lack of expression available in institutional space. In the findings chapters I presented evidence to suggest that Sam developed the means to collaborate first with his peers outside the classroom and then with his classmates (Section 5.2.3). In addition, we saw how he began to work in a more improvisational manner, using *GarageBand* for Task 2 (Section 5.2.4) as well as in a genre and expressive fashion with which he was more accustomed (Section 5.3). Yet, for Sam to attain this development he first became aware of the constraints on his composing process in school (noted above). However, he also saw an opportunity to expand his composing process outside the constraints of the scaffolded environment of institutional classroom space.

Sam stepped outside the conventions of the institutional space in two ways. Firstly, he chose to collaborate as part of his composing process, when to do so was to reject the 'rules' of the classroom that 'this should be an individual composition'. Secondly, he broke away from the context of working within *Cubase* together with a MIDI keyboard and mouse, and actively pursued an alternative option that involved a microphone, *GarageBand*, his bass and his saxophones. It could be argued that this second destructive process was not 'breaking away' as all students were given the opportunity to use the resources of the

department. However institutional space was described above (7.1.1) as comprising those things that help to structure students' composing processes, that help to guide them towards a successful answer to a GCSE composing 'question'. Yet, Sam was doing more than 'using the resources' of the department. He was actively deconstructing and reimagining combinations of resources. In doing this Sam was going beyond the institutional space, represented by the teacher's scaffolding, or: 'the rules and tools put in place to help him to compose, the school ethos and the examination specification'. Even the school and department ethos statements that are arguably more aspirational rather than descriptive (4.2 and 4.3) do not suggest that technologies may be re-tasked and used in an innovative way by students themselves. They can be 'used' only. Thus, as there is no evidence to suggest that the institutional space was intentionally organized to support students in breaking apart and reconstructing the classroom resources to make a novel environment, it is reasonable to view Sam's and Emily's appropriations of the technology as more than just 'using' it. Of course it is also possible that their breaking away in this way was related to their status as co-researchers in the current study. However, this does not invalidate their development into this new space, as this breaking away was not scaffolded by the class teachers (within institutional space). Thus, following his realisation of the constraints of the personalised space in which he worked for Task 2, we can say that Sam moved into emancipated space by actively constructing the social and cultural context within which he worked during Task 3. Put in other words, Sam's developmental progression can be described as breaking away from 'institutional space' by responding to his explorations of the possibilities of computer-based tools in a way which took him towards an emancipated space. In this case through the digital technologies he used to construct his computer-mediated environment. Such an environment sits outside the constraints of the social and cultural constructs that make up his scaffolded (institutionalised) classroom. In his emancipated space Sam constructed his own environment for composing by re-tasking the digital technologies and in so doing overcame the constraints (not being able to play his saxophone or bass to compose, not being able to play with feeling, not being able to record ideas from home, not being able to use effects) he experienced in his personalised space.

The notion that students like Sam built new environments for composing is supported by Kress et al., (2001, p.2), who propose that individuals shape and re-shape the resources they have to enable their 'product' to match their intentions. Following on from this, Verillon and Rabardell (1995, p.80) suggest that an instrument only exists when people have been able to appropriate a tool for themselves and it has become integrated into their activity.

They demonstrate that this process can go through several stages, including a 'transformation' of the tool. Building on these notions I suggest that it is Sam's intentional transformation (Vygotsky and Rieber, 1999) of the digital technologies that allows him to work with what I understand as his computer-mediated environment. Further, I suggest that, based on Sam's and Emily's developmental progressions, it is a context of this nature which holds the transformational potential suggested by several recent studies of computer-based technologies used in music education (Savage, 2005a; Dillon, 2007; Seddon, 2007; Gall and Breeze, 2008). This will be discussed further below. In this digital technology enabled emancipated space, that is, space which exists to an extent only with digital technologies, Sam is able to create and share his music in a way which is not available even in the scaffolded 'tool' space of the computer-based workstation during Task 1.

Emancipated space: connecting with expansion

Support for the characterisation of development as going beyond existing constraints can be found in research recently completed by several authors on the use of computer-mediated environments in institutional spaces. In a study of the use of YouTube as a means of expression through digital technologies, Cayari (2011) demonstrates how the interactive media accessible through YouTube opens doors to opportunities which lie outside the experience of the class teacher and thus outside 'institutional space'. In his study of the use of multimodal digital technologies to promote generative music making Breeze (2009) notes how the original notion of 'proscription', present in the learning design of his study, had to be extended to include the possibility of moving beyond the given constraints. Furthermore, Draper (2008) describes the outcomes of a longitudinal action research project into the use of dynamic training environments reminiscent of social networking environments, which show that such environments allow for expansive and personalised emancipated spaces. Dillon (2007) and Gall and Breeze (2008) highlight how computer-mediated environments create new spaces for collaboration through the visual affordances of the displays on the monitor screen.

The concept of emancipated space resonates with Wegerif's (2007) notion of expanded space, which is significant in that the analysis in the current study was carried out apart from his work. In his discussion of dialogic approaches to teaching with technology, Wegerif builds on Derrida's notion of 'difference thinking' to suggest that expanded space is one in which two voices are in dialogue. This process results in a perspective that sees the self as part of the view of another while at the same time also viewing the other (ibid. p22). In this case one voice would be that of the student and the other that of the institution. Yet,

Wegerif's notion of expanded space differs from that of emancipated space in two substantial respects. Firstly, emancipate space is not the same as a space in which there is this dialogue between student and teacher (as perhaps the most dynamic representation of a students' institutional space). This notion is dealt with below and is referred to as shared space (see 7.4) having been informed by Kramsch's 'contact zones' (1993) and Gutierrez et al.'s (1995) third space. However, the notion of emancipated space also differs from Wegerif's expanded space in a second and more significant respect. In referring to Sam's and Emily's spaces as emancipated I am drawing attention to the critical nature of their stance toward the institutional space from which they move. They do not merely go beyond the institutional space but they do so in a way that rejects the old ways of working. Rather than being towards 'the horizon' (Wegerif, 2007 p25) or towards institutional space, the students' orientations are away from institutional space and towards their world outside the constraints imposed within institutional space. With Sam this is seen in his articulations of the institutional context as 'playing not feeling' in contrast to his statement 'it just kinda flowed out' in his emancipated space. For Emily this is seen in her resistance towards the institutional space during Task 1 and in her destruction of the institutional space in Task 2. For both students there was an active destruction of existing arrangements in order to reconstruct new spaces through interaction with computer-mediated environments. While 'computer-mediated environments' refers to the technological contexts of their composing, emancipated space is a broader holistic conceptualisation that accounts for the social and cultural contexts of their ways of working.

Thus, Engeström's (1996a) destructive rejection of the old as a developmental pathway resonates both with the music education and educational technology literature, as well as being evident in Sam's composing process. This is seen in his re-tasking of the digital technologies at his disposal, his rejection of the collaborative constraints of the institutional composing space and his subsequent expressive and collaborative work with the emancipated space of his computer-mediated environment.

Transformation in emancipated space

Figure 7.3 illustrates the process by which Sam and Emily's developmental progression into emancipated space occurs. The dotted arrow from personalised space highlights that progression into emancipated space was contingent in the current study upon Sam (and Emily, see below) i) becoming aware of the constraints of the classroom space in which they were composing; and ii) responding in opposition to the established convention of the classroom. This is demonstrated most clearly when Emily spoke of the constraints of the

MIDI keyboard that did not allow her to compose as she would have liked (6.3) or when Sam spoke of 'playing but not feeling' (5.1). In each case they were expressing their objections to the institutional regime in which they were working. As I have suggested above, Sam transformed the constraint of being unable to play with feeling by creating a context in which he could play in this way on his own and with his own instrument. In this way he developed a new relationship with his context through his explorations of the affordances of the available digital technologies. His explorations of this emancipated space allowed him to transform both the digital technologies and also to revise his approach to the rules of the task. This in turn also changed his social interactions. In a similar way, Emily transformed the constraints of being unable to privately compose using a piano when using a computer by constructing her own environment in which she could do so. In doing this she did not balance her own needs with the requirements of the institutional space in which she was working. Instead she transformed the context into an emancipated space in which she could fully meet both her own requirements and those of the institution.

A key difference between personalised space and emancipated space is that the former occurs through a serendipitous match between an institutional space and an individual's preferred approach to composing. In contrast, emancipated space occurs through a process of seeing the constraints of a personalised context and then transforming the context itself through some intentional activity. Put simply emancipated space is a qualitatively different space because the student has had to do something to make it. I have called the space for this development 'emancipated space', to emphasise the liberation of Sam's and Emily's ways of working from the constraints in place within institutional space. Crucially the term 'emancipation' also highlights Sam's and Emily's critical awareness, that was necessary for them to still meet the demands of the institution as part of their transformation process. Development at this point is called 'computer-mediated development at the point of transformation' to emphasise the significance of the digital technologies' transformed natures, now being functional organs (Zinchenko, 1996). That is; 'a combination of internal and external resources capable of attaining a definite end'. This kind of transformation is deeper than mere change. Instead it is an internal and external restructuring of the relationship between student and technology, in which the student is able to work in a new way both with technology and composition as well as viewing both with a fresh perspective (Vygotsky and Rieber, 1999). In this case the combination of Sam's previous musical experience and his newly tasked digital technologies allowed him to work in a way that was more personally expressive and meaningful than was previously the case. Sam's work in emancipated space is redrawn on the same triangle showing that this transformed

activity takes place his Zone of Proximal Development. In this case it is transformed so that it exists outside the institutional space of the classroom.

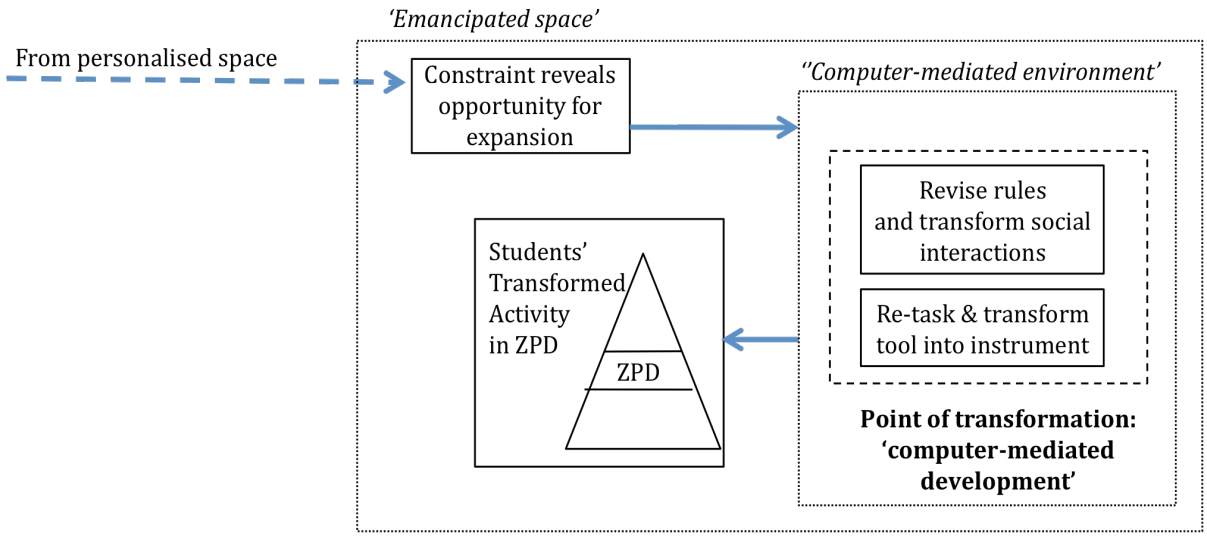

Figure 7.3 Sam's and Emily's emancipated space and point of transformation.

Emily's composing process is notable in that as well as revealing a transformation into emancipated space as she negotiated the rules of the task and changed the digital technology she employed to achieve a more artistic way of working (Section 8.1), her transformation also had a wider visible impact on institutional space through sharing. I will go on to introduce her development in this space alongside Engeström's (1996a) second and third proposals for an expanded notion of development. Before this, however, I will offer the third of my autobiographical notes to contextualise the current discussion of development as connecting in emancipated space.

7.3.2. My Connections Within Emancipated Spaces

In the following section I present two narratives that illustrate my experience of emancipated space. Each of the accounts is an illustration of ways in which my own experience of constraints led to ways of working that sat outside convention. Furthermore, each is included to highlight how my own perspective mediates the current discussion.

Emancipation and a school recording studio

An example in my own experience of how once-visible constraints can lead to a breaking away from the confines of the school environment comes from my time as an A-level student. As one of my options for A-Level theatre studies, I chose to produce a live

soundtrack for a musical production. Selecting 'The Golden Masque of Agamemnon' (Wiles, 1978), a play based on the famous Greek tragedy, as my dramatic production, I proceeded to use my knowledge of our school recording studio to produce a 'Varese' inspired soundtrack. During recording I used all the resources of the studio, including DAT tape, 8-track tape, MIDI recordings on the *Atari ST*, a mixer, CDs and synthesisers. These were then mixed down to produce the final soundtrack. This proved to be a problem during rehearsal, as the actors could not synchronise their performance to the mixed-down version of my soundtrack, which was played through the theatre sound system. I discovered that the live nature of the performance required my musical ideas to be flexible in terms of their lengths, speeds, starting points and stopping points. These constraints inspired me to explore alternative options. The result was that I ultimately gained permission to transport the entire recording studio to the performance venue and rewire it so it could be controlled by starting, stopping, mixing and adjusting the speed of each idea in real-time. The resulting updated studio provided a new environment for performance and working in synergy with the cast, I performed the work without a hitch. Thus the final studio or 'soundtrack instrument and performance environment' emerged when I restructured the equipment I had used previously, in response to a performance constraint. Critical in this process was the risk I took in utilising the full range of resources available in the studio, as was the process by which I was granted the necessary permissions by the music teacher in charge of the studio. Only after careful negotiation was I allowed to disassemble and reconstruct the studio resources. This narrative illustrates how I shaped the task and tools at my disposal during a composing project. In a similar way, Sam and Emily negotiated changes to their tasks and digital tools to shape their own computer-mediated environments.

Emancipation from existing tools

A final and more recent example of this process is the synchronous multiple video system employed during the current study. Initially I realised that the present research required an approach to data collection thatallowed for the monitoring of real-life musical classrooms. In addition, it would be necessary for students to reflectively engage with their own developing practice. In chapter 3 I discussed how existing methodologies for collecting real-time musical data employed video screen capture (eg Seddon & O'Neil, 2003; Gall and Breeze, 2005) and MIDI recording technologies (eg Fölkestad, 1998; Collins, 2005). However, in the current study the challenge of working with multiple cases who, as adolescents, would also require support with their reflections, meant that the data capture and synchronisation would need to be simultaneous. Having researched the available hardware

and software, I discovered that I would not have access to existing technologies for capturing video and audio in multiple streams. While they were available in professional film and television products, their cost was prohibitive. I also could not find any previous research that had attempted to capture the kinds of multiple simultaneous streams of video and audio data required for the current study. In this way, the constraint of the available technologies became an opportunity for exploration and the development of a new solution. The solution for the current study draws on my previous experience of employing digital audio workstation (DAW) technologies to record multiple channels of audio for subsequent editing. Moving this concept across into the world of video research gave rise to a solution which allowed me to record multiple video and audio inputs (3.3). Thus it was the constraints of this technology in tension with my previous experiences of the opportunities available in the world of music technology which led to the development of a new transformed tool and video-research environment. In this case the similarity between my own experience and those of Sam and Emily was my restructuring of a digital environment to satisfy the needs of a task in a way which was grounded in my personal history. Sam and Emily both carried out a similar process of restructuring during their composing processes. These two examples illustrate how my perspective has led me to see emancipation from institutional space in Sam's and Emily's composing processes.

7.4. CREATIVE DEVELOPMENT: RECONNECTING IN SHARED SPACE.

As I noted in the previous sections, Sam and Emily demonstrated development within what I have called institutional space, that is, the music classroom within which the teacher scaffolded composing activities to promote development. They also worked in the classroom in a more personalised space within which they became aware of the constraints of the classroom. I have discussed the findings which suggest that Sam's and Emily's awareness of these constraints led to restricted ways of working within the classroom, and have introduced some of the evidence which suggests that this was not always the case. Continuing to build on Engeström's (1996a) notion of development as breaking away, I will now move on to discuss further findings which support the notion that Sam's and Emily's composing in personalised space led to ways of working which sat outside institutional space, in emancipated space. Alongside this, I will suggest that work in this emancipated space resulted not only in Sam's and Emily's individual transformations, but also a transformation of the classroom community as they reconnected with institutional space through a shared space.

Development as collective rather than just individual transformation

In his discussion of development as breaking away, Engeström (1996a) notes that while Vygotsky attends to the social and cultural in human development, he still conceptualises it as change at the individual level. Thus, according to Vygotsky's focus, while development is contingent upon social interaction and collaboration, it is the individual rather than the collective who undergoes a transformation.

We have previously seen that even within the institutional space of the classroom the emergent contextual affordances and constraints change over time in response to Emma's (the trainee teacher's) perception of Sam's difficulties with composing on the worksheet (Section 4.5). In Section 4.6 of the findings I also presented evidence demonstrating that Emma's development provided Sam and Emily with greater freedoms within which to compose. Emma described the change as 'letting go…taking it and running with it on their own more'. The evidence of this process of releasing freedoms further supports the notion that the contextual affordances and constraints change over time as Sam's and Emily's composing processes unfolded. It could be argued that this contextual development occurs as a result of the status of Emma as a trainee teacher, as she became more proficient through the year. However, I would argue that assessing students' learning and responding to their changing needs and environment is a central aspect of good teaching. Thus it is reasonable to conclude that these developmental changes are not solely attributable to Emma's status as a trainee teacher, but are also due to the professionalism of the other music staff. It is nevertheless probable that changes of this nature are more likely to be seen through Emma's developing practice as a result of the rapid progress made by trainee teachers early in their teacher career. Thus in one sense this is collective transformation although not in the sense that both teacher and students are transformed. Instead, this collective transformation is a change in the composing context and is contingent upon the teachers' perception of their students' activities and capacity to facilitate contextual change. Figure 7.4 illustrates this process of collective transformation through the teacher's perception of students' work with a line linking together students' work in their transformed ZPD and their conforming work in the ZPD within institutional classroom space.

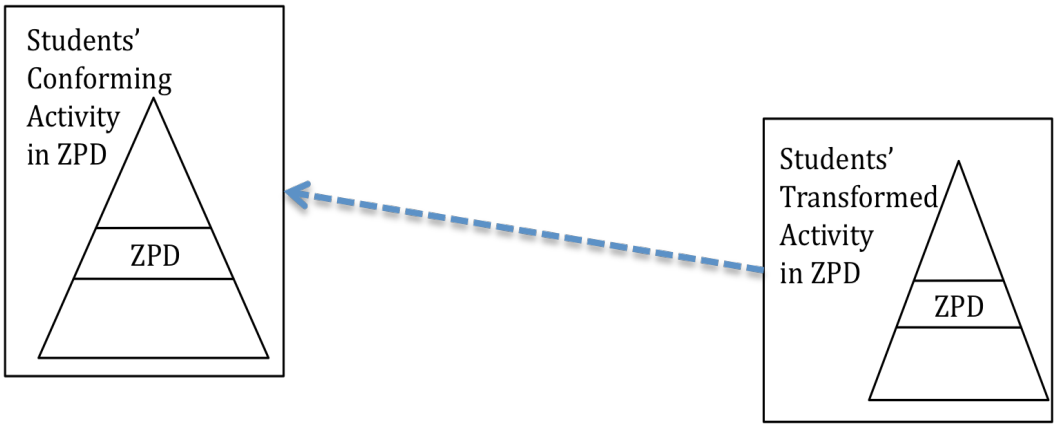

Figure 7.4: Collective transformation through teacher perception.

Yet Emily's composing process reveals a further collective transformation that appeared as change not only in the institutional context of the classroom, but which is also arguably sat outside the teachers' capacity to facilitate change. It was noted in the findings that Emily collaborated with her peers and used the digital technologies in the classroom to negotiate working in a more artistic way during Task 1. I presented evidence in Section 6.1 to suggest that Emily uses the constraints of the MIDI keyboard and *Cubase* software as a means of communicating to the teacher that the constraints of the environment prevent her from being able to work within the parameters set at the start of Task 1. Emily's intention to complete her work on the piano, which she asserted had been in place from the start of the composing task, suggests that this is a further example of using emancipated space to revise the classroom rules. In this case the computer became a medium for communicating with the teacher about the constraints of the digital technologies.

Yet rather than responding by removing the constraints of the technology which prevent Emily from being able to complete the task, Emma chose instead to allow Emily to alter the parameters of the task and perform on the piano. While it could be argued that Emma's decision to allow Emily to use the piano is based on expediency or a change in attitude towards the freedoms in the task as a whole, her comments about the affordances of the digital technologies available and my own impressions of her expertise in technology together suggest that this decision may have arisen because she was unable to see an alternative technological solution. Certainly, in allowing Emily to use the piano in the practice room she significantly reduced the potential for feedback and assistance with composing (which was available to Sam who worked on the computer). For an example of this support, see Section 5.3. This lack of parity supports the conclusion that the solution of using the piano was the only one visible to Emma. In addition, we see from the findings in Section 6.3.2 that Emily's compositional development proceeded ultimately into a

computer-mediated environment of her own design, including an electric piano and earphones. Thus it seems that the technology was available, but perhaps not evident to the teacher as helpful in this context.

Emancipated space and big 'o' ownership

In contrast to the concept of 'small o' ownership proposed above, I suggest that work in emancipated space, which sits outside the support in institutional space, can be thought of as 'big O' Ownership. Furthermore the findings suggest that collective development only occurred when Sam and Emily owned ('big O') their composing processes. This collective development may have occurred in two ways as a result of Emily's work over time. Firstly, once Emily had demonstrated the limitations of the technology to the teacher, this may have impacted upon her attitude towards the technology as well as the rules she applied to the rest of the class. This development could be thought of as computer-mediated 'social expansion' within a digital environment. While this is conjecture, as no evidence of such a change in attitude was sought or is visible in the findings of the current study (the focus being on students' developmental progressions), it is reasonable to assume that it took place. Just as the constraints which become visible within Sam's and Emily's personalised composing contexts impacted upon their exploratory composing processes, so the teachers' personalised teaching context is likely to have undergone similar developments. Nevertheless, to understand this further, additional research is needed to investigate class teachers' responses to constraints in classroom contexts when highlighted by students. Secondly, collective development was possible as a result of Emily's explorations which solved the problems she experienced in Task 1 and led her to use the electric piano and headphones during Task 2. As the class teacher was in chanre of the lessons during Task 2, it is fair to assume that she became aware of Emily's solution. Furthermore, that Emily's computer-mediated environment therefore became a model that could be used by other students; scaffolded by the teacher. However, capturing these data was beyond the scope of this enquiry and thus presents a promising avenue for further investigation.

Emancipated space and three key studies: connecting back

Before moving on to consider the findings from the current study in terms of Sam and Emily's more intentional sharing and in the light of Engeström's (1996a) notion of development, I will take a moment to consider Sam's and Emily's composing in emancipated space in terms of three noteworthy studies on composing in music. In so doing, I hope to make a significant connection back to my intentions as a music teacher embarking on the current study.

Firstly, Burnard and Younker's (2002, 2004) composing pathways, previously discussed in Section 2.5, share similarities with those of Sam and Emily. Emily's early composing process shares many similarities with the staged pathway as she ultimately reveals "progressive movement forward and across composing phases" and has an "expressive focus" (2004, p.65). One could also argue that verification exists in the form of performing and listening as she works with her computer-mediated environment in Task 2. However, her composing during this second phase appears to be more linear. There was much exploration and minimal interplay between phases of composing. Alongside this, Sam's composing process shares many similarities with a recursive pathway. His composing time was divided between phases and there was much interplay between them. Additionally, his focus was on expression. However, his later tendency, within emancipated space during Task 2, was towards a regulated pathway, with continuous interplay between phases, much incubation and also goal setting. Yet, notably, there was also much exploration. Thus there is a question as to whether his pathway may be linear during Task 2. This raises an uncertainty about whether Burnard and Younker's scheme is applicable across different contexts. Sam's and Emilys' changes may be accounted for if one considers their move from working within a scaffolded institutional space toward work in a digital emancipated space. It is possible that the constraints and affordances in institutional space forced them toward a different composing pathway, due to the need to match their previous experience with the composing context. When moving outside the scaffolding of institutional space, their composing pathway may have changed as they took greater ownership of their composing processes. Thus it is possible that students' composing pathways may be flexible, changing between spaces and contingent upon the affordances and constraints that shape the context within which they are working.

Secondly, in his study of a professional composer working in a computer-mediated environment, Collins (2005) notes that a significant aspect of the professional's composing process is a "restructuring of the problem" (p. 211) during which many simultaneous composing problems are addressed. Work for Sam and Emily within emancipated space seems to have involved the same kind of simultaneity of processing to which Collins refers. For example, in developing their own computer-mediated environments both Sam and Emily resolved the tension between the constraints of institutional space and their approaches to composing based on their previous experience. Thus it is possible that computer-mediated development in emancipated space is characterised by the capacity to see opportunities to shape the context of composing and overcome problematic constraints which operate within institutional space.

Finally, Gall and Breeze (2005) note that when composing with computer-based tools, some students found their environment restrictive. This shares similarities with Emily's experiences during Task 1 in the current study. Yet both Sam and Emily were able to transform their constraints into opportunities for innovation as they re-imagined the tools in the second task. In each case a deeper level of engagement only transpired when they worked within their emancipated space and constructed their own computer-mediated environments. In Gall and Breeze's study, they note that students engaged easily with the surface features of the program and with little instruction. Yet, significantly, students did not engage with the deeper level features of the digital technologies. The shorter time scale of the composing activities in Gall and Breeze's study may account for this lack of engagement Thus, it is possible that, like Emily during task one, the students in Gall and Breeze's study who found their composing environment restrictive, did so either because they engaged superficially with the affordances of the environment or because the environment required transforming through re-tasking, as in the digital emancipated space in the current study.

Taking these studies together, it appears that my original notion as a teacher (see chapter 1) of directing students towards a computer-mediated environment which might suit their composing pathway may be problematic as it is possible their pathway may change between spaces. It seems that digital technologies may only become truly transformative mediums for thinking when students move into emancipated space, construct their own computer-mediated environment and then immerse themselves in that space. This is a significant and unexpected conclusion as part of my motivation for the current study as a classroom teacher was to address the problem of how teachers might help students to benefit from the potential offered by digital technologies (see chapter 1). This conclusion is necessarily tentative due to the small-scale nature of the current research. Further research over longer timescales is necessary to further investigate this issue.

Development as horizontal movement across borders: shared space

A third notion within Engeström's (1996a) concept of development as breaking away is that of movement across borders. This idea is useful as it helps us to refine further our understanding of the nature of the emancipated space through which Sam and Emily both appeared to proceed as part of their compositional development.

To develop his notion of movement across borders, Engeström draws on Kramsch's idea of 'contact zones' (1993) and Gutierrez et al.'s (1995) model of third spaces as points of meeting

between cultures or discourses, within which ideas may be transformed. Along similar lines, Levy (2011) reviews the contribution of children to discourse on technologies in school using Bhabba's (1994) notion of third space. She conceptualises third space as a "space of cultural, social and epistemological change through which different funds of knowledge or discourses are brought into conversation with each other" (p. 160). Observing the role of technology in this conversation in relation to digital literacy and text, she illustrates how technologies can help to foster links between students' experiences at home and their work in institutional school space. My characterisation of Sam's digital emancipated space in the previous section can also be thought of as a context within which different discourses are brought into conversation *within the individual*. As such it also resonates with Wegerif's (2007) expanded space (above). In this case the discourse is between the institutional space of the classroom and Sam's previous experience of composing, which existed in tension within his personalised space and provoked his tendency towards emancipation. Yet, while Bhabba's conceptualisation of the third space allows for the individual transformation seen in Sam's development in emancipated space, a broader notion is required to account for the meeting between spaces that results in an interaction which forms new meanings and goes beyond the spaces of both institution and student. Common to Kramsch's 'contact zone' and the third space of Gutierrez et al. is the recognition of our inability to ever understand the world of another. It is this inability to understand which is perhaps central to comprehending what it may mean both to work in an emancipated space – across an 'institutional' border - but also to reconnect back to this space in some way.

In Section 6.3.2 I presented evidence that Emily's composing process proceeded from exploring first in a private space at home towards working in a semi-shared space with her friend in a practice room and finally in a shared space first with the piano and then in her computer-mediated environment. If we understand Emily's emancipated space as a point of meeting between cultures, then the point at which she shared her work first on the piano and then in her computer-mediated environment were significant moments of discourse between worlds. We have already noted the way in which Emily's work in her emancipated space may have led to a collective development (previous section). Taking this forward then, her development within emancipated space appears to have also led to a significant moment of connection, which I have called 'creative development'. I use the term 'creative' as it encapsulates both the divergent and the convergent, as in Webster's (2002) model of creative thinking in music. The divergent is the emancipated space where Emily transformed her composing context and generated new solutions to a problem. The convergent is the institutional space where her goal of realising a composition for

examination was achieved and the appropriate solution was clearly defined, such that it was visible to others. For Sam, his moment of reconnection can be found in Section 5.3.2 when his emancipated space of working outside the classroom with his friend was connected with institutional space through his new capacity to translate his ideas, made possible by his computer-mediated environment. Divergent activity is seen in his rejection of the constraints of institutional space and his persistence in working with his friend at home. Convergence is seen as he managed to work with these ideas when composing for Task 2.

Figure 7.5 illustrates shared space as a point of connection between students' work in their transformed ZPD, and the teacher's perception within institutional space. This sharing activity is positioned across emancipated and institutional space to illustrate the inability of teacher or student ever to understand – that is, work fully inside - each other's worlds. Instead, the activity takes place in a middle ground which transcends both contexts.

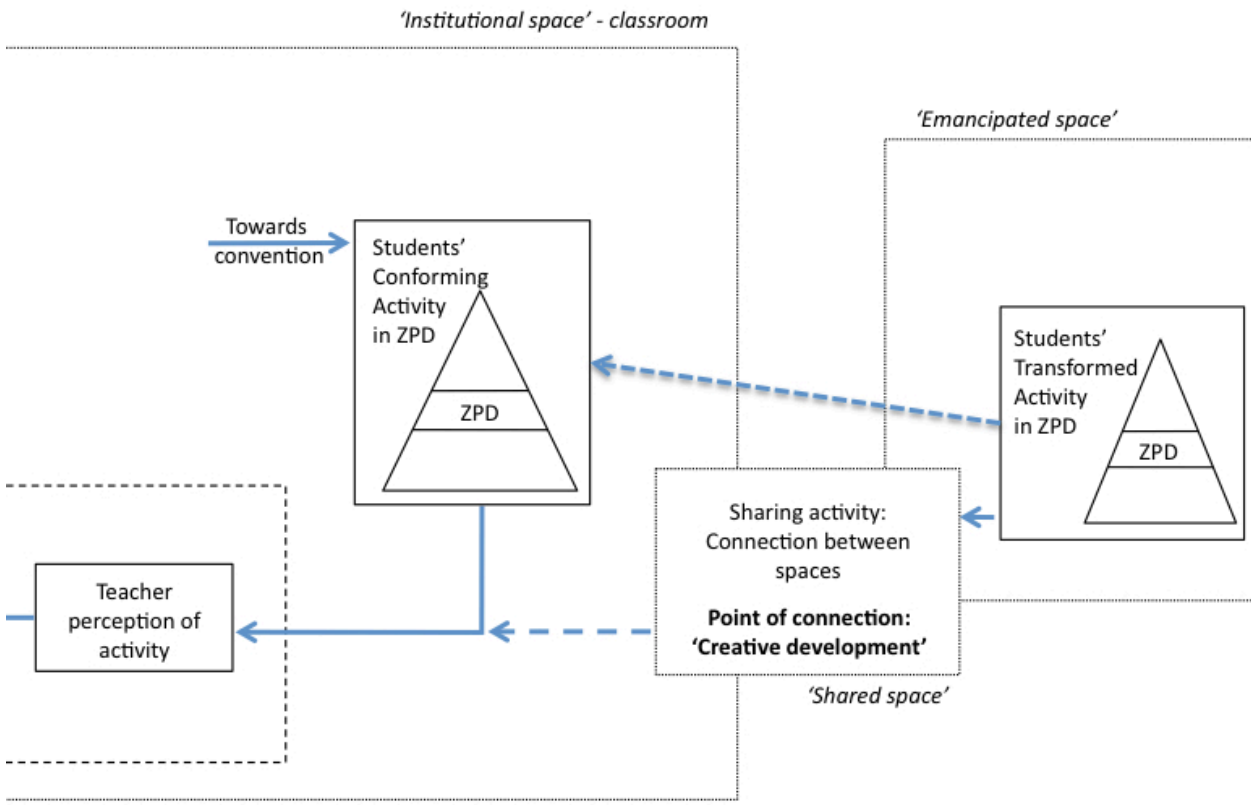

Figure 7.5: Creative development as a point of connection within shared space.

Several recent studies have noted the importance of discourse between worlds in music education. Morgan (2007) and Mantie (2008) illustrate the importance of music as a vehicle for discourse in the pursuit of social justice. In their studies of music making in inner-city contexts in the USA and Canada respectively, they found that work through highly

personalised music making, arguably in an emancipated space, afforded participants opportunities to 'author themselves' and in so doing find empowerment within wider society. Partti and Karlsen (2010) demonstrate how musical identities are explored and constructed in the emancipated space of a web-based reality. They note how members share and discuss their own music and, through this reconnection with others, develop their music-related knowledge. Finally, Wright (2008) notes the importance of students' Ownership ('big O') of the production and development of knowledge in music classrooms. Based on her study of the constraints of a particular Year 10 (14-year-old) classroom, she suggests that giving pupils control over their context, and reducing the power of the teacher, would help to avoid the alienation that many students feel. Across these studies it seems that the opportunity to work in emancipated space may be a significant characteristic of the potential that music offers to transform both social contexts and individuals themselves.

Reconnection with institutional space through the discourse generated by activity in shared space involves divergent and convergent thinking and therefore I call this 'creative development in the context of computer-mediated composing'. In the case of Sam and Emily this was facilitated by a personally constructed computer-mediated environment. Due to the potential for such development not only to transform individuals, but also to impact on the community in which they worked, composing in emancipated space appears to be a significant aspect of compositional development with computer-mediated environments. My fourth and final autobiographical positioning follows, after which I will present my combined descriptive model of Sam's and Emily's compositional development.

7.4.1. My Connections Within Shared Space

This final narrative demonstrates how my experiences of working across boundaries and making connections link with those of Sam and Emily. As with my previous acts of positioning, this in intended to make explicit the ways in which my own perspective mediated the construction of meaning during the current study.

The current research project is an example of working across boundaries, exploring a gap in existing literature and perhaps even 'convention'. Working between music education, music technology, educational research and technology development, the current research is itself an example of what, after Wenger (1998), I have called 'making connections between worlds'. Yet the shared space of these pages also allows me, as the writer, to connect my explorations of the space outside or between each of these areas with you, as the reader. This work of making connections 'between spaces' is mirrored many times over in my

experiences both before and during the current research. As a teacher, writing and arranging many pieces for instrumental and vocal groups brought together my love of music technology, composing and teaching. More recently, in the restoring of a piano I made connections between my love of working with musical instruments and of crafting natural materials. Finally, in my work as a tutor with postgraduate teacher trainees I have made connections between my love of music, teaching and research. In these examples, the endpoint of each connection was the social sharing of a transformed activity: i) as a teacher, a transformed performing experiences with students; ii) with the piano, a transformed my experience of making music with family and friends; iii) as a tutor, a transformed understanding of what it means to teach music with digital technologies. Notable in its contrast with the songs I wrote as a teenager that were rarely heard by others (7.4.1), social sharing is a final aspect of my own experience, which completes my work in emancipated space. In this way, just as Sam and Emily ultimately appear to have made connections between their personal acts of meaning-making in emancipated space and the structural demands of their second composing task, so too, as I have worked during the current study my personal connections between spaces have been implicated as my own acts of meaning-making.

7.5. A DESCRIPTIVE MODEL OF SECONDARY MUSIC STUDENTS' COMPOSITIONAL DEVELOPMENT WITH COMPUTER-MEDIATED ENVIRONMENTS IN A CLASSROOM COMMUNITY.

The following illustration, shown in Figure 7.6, draws together the findings discussed above into a descriptive model of Sam's and Emily's compositional development with computer-mediated environments in the classroom community at Stourbank school. Each of the four spaces discussed above, institutional, personal, emancipated and shared, are linked through arrows which indicate the progression through which Sam and Emily travelled across their year of composing. Four developmental points are noted, which were identified in the findings and discussed above: a point of enabling, a point of discovery, a point of transformation and a point of connection. Each point of development is linked to a type of development which, drawing on the literature, have been given the following titles: scaffolded development, serendipitous development, computer-mediated development and creative development. As the model is a descriptive model only, no attempt at generalisation is made. However, it is possible that further connections with existing literature and additional contexts and students may be made by the reader, thus expanding the descriptive potential of the model beyond the boundaries of the current study.

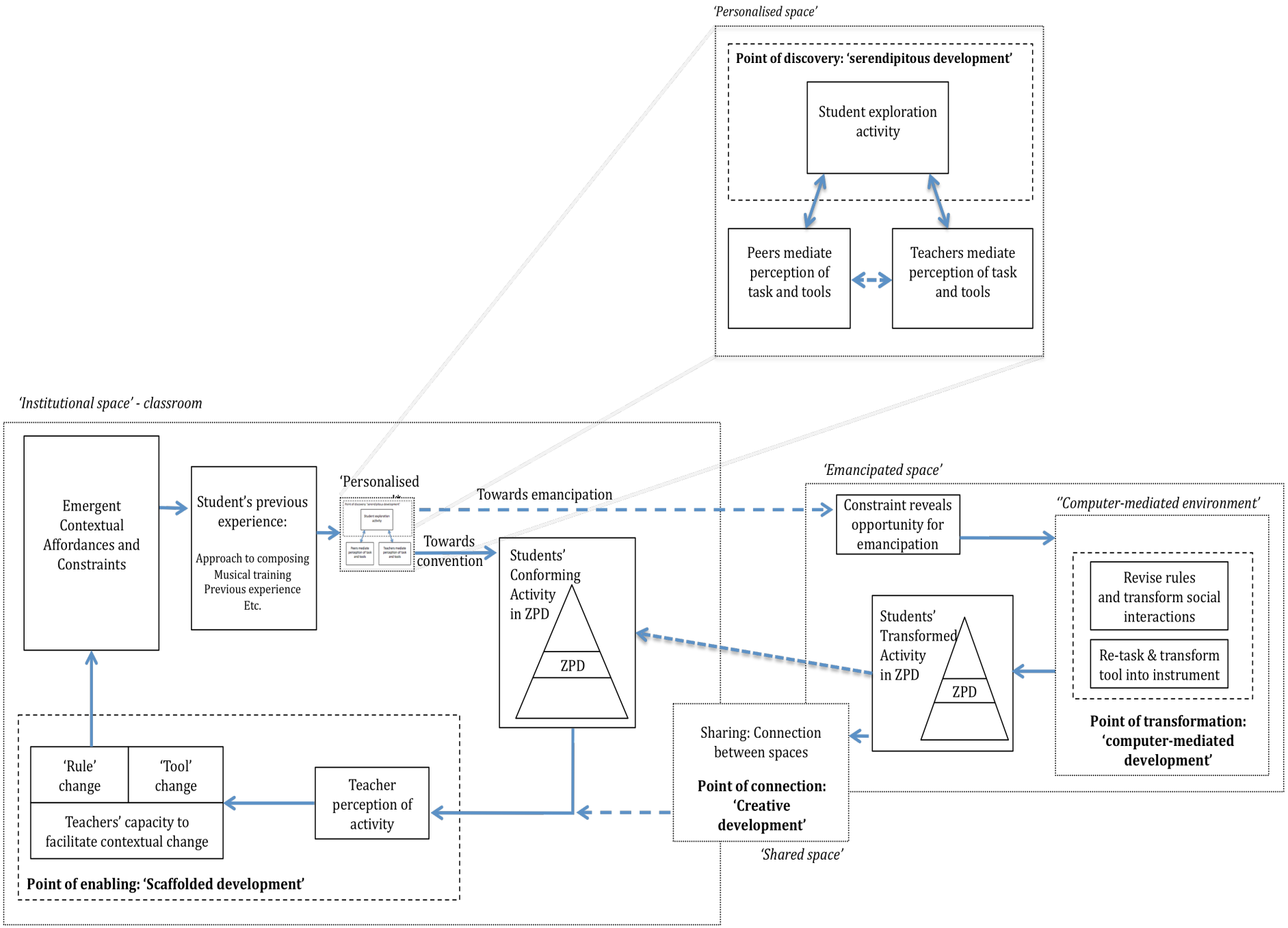

Figure 7.6: A descriptive model of compositional development in computer-mediated environments in a classroom community.

8. CONCLUSION: MAKING CONNECTIONS

In this final section I will highlight several themes that emerge from the current study of how Sam's and Emily's compositional development proceeds. I will begin by reviewing the research questions, the way in which these are addressed in the current study and how they culminate in a new model of secondary music students' compositional development with computer-mediated environments in a classroom community. I will then highlight those features of this descriptive model most likely to provide fruitful avenues for further research and which present noteworthy implications for policy and pedagogic practice. I will close the chapter with some methodological reflections, by highlighting some provisional implications of the current research for practitioners and with a final personal reflection about the current research. I have conceptualised these sections in keeping with the emergent descriptive model, as a series of connections that 'draw together the strands' of the context that is woven together through the current study. In a sense, this chapter could be though as an intentional shared space; one in which I engage in convergent activity, reconnecting with a field of understanding by presenting ideas that emerge from the transformation of my understanding of development. In doing so I hope to energize secondary transformations: of our understanding of music education and of its practice.

8.1. RECONNECTING WITH THE RESEARCH QUESTONS

The initial stimulus for the current research project were my experiences as a secondary teacher struggling with the challenges of how to employ computer-based technologies to assist with the process of providing opportunities for musical activity in music classrooms at GCSE level (Section 1.1). The main aim of the present study was therefore to research the problem arising from my realisation when working as a music teacher that while computer-based technologies can help to provide opportunities for 'musical' activity in the GCSE music classroom, they do not always promote meaningful compositional development. In response to this and building upon current literature, the stated aim of this project was to work towards a more 'musical' understanding of compositional development, which attends to the individual nature of the composing process and more fully addresses the context of composing.

This aim was operationalised in the following research questions (Section 2.4.3):

Main research question:

> How does the compositional development of individual secondary music students proceed when working with computer-mediated environments, over time and in classroom communities?

Sub questions:

> 1) What qualitatively different composing strategies are observed, when secondary music students compose with computer-mediated environments in classroom communities, and how are they used?
>
> 2) What qualitatively different composing strategies do secondary music students articulate as part of their process of composing with computer-mediated environments in classroom communities, and why are they used?

These were brought together in a final research question, which sought to map changes in students' composing processes over time:

> 3) What, if any, are the qualitative changes in the nature and use of the composing strategies employed by secondary music students working with computer-mediated environments, over time and in classroom communities?

In response to these questions I have investigated, along with Sam and Emily, two developing composing processes in the particular composing context of a GCSE class at Stourbank school. In Sections 5.2 and 6.2 I presented the different composing strategies observed in their composing processes over time and presented Sam's and Emily's own articulations of their composing processes. The questions of how and why these strategies were used were answered alongside my presentation of the changes seen in their composing processes (Sections 5.3 and 6.3).

Following the findings presented in chapters 4 - 7, I addressed the main research question in my discussion of Sam's and Emily's composing processes alongside related literature. The descriptive model, constructed in chapter 8, is a diagrammatic representation of how their development proceeds through four spaces: institutional space, personalised space, emancipated space and shared space. The model also illustrates how each space relates to development which occurs at four different points and which have contrasting features:

- Scaffolded development at a point of enabling;
- Serendipitous development at a point of discovery;
- Computer-mediated development at a point of transformation;
- Creative development at a point of connection.

In this way the current study successfully attends both to the research questions of the current study and to the broader aim of researching the problem facing practitioners in secondary schools that computer-based technologies do not always promote meaningful compositional development. I will now move on to review several key ideas that emerge from the descriptive model presented in chapter 7.

8.2. RECONNECTING WITH RESEARCH, POLICY AND PRACTICE

In this section I will draw together five strands of thought, which emerge from a consideration of the descriptive model of Sam's and Emilys' compositional development presented in chapter 7. I each case I will present these as issues of importance, in that they give rise to potentially significant implications for research, policy and practice related to secondary music education in the UK.

The importance of personalised spaces and a flexible pedagogy

The first strand arising from the current research relates to the importance of providing a physical space within which students can explore links between their previous musical experiences and the classroom context. Mediated by their interactions with friends and their class teacher, Sam's and Emily's composing processes suggest that such explorations can lead both to the development of improved teacher-constructed scaffolding and also work in emancipated space. Both Sam's and Emily's underlying approaches to composing remained largely unchanged across the study. Sam tended consistently towards improvisation and expression while Emily tended towards an artistic and exploratory approach. The strategies they employed across the study were used in different ways and in different contexts but are broadly the same. Following on from work in their personalised space and revised scaffolding, the development of personally meaningful computer-mediated environments, for both Sam and Emily, had perhaps a greater impact on the quality of their final work than their increasing capacity to develop musical ideas apart from the computer. Certainly it seems that their development in emancipated space was contingent upon both their time working in a more personalised space and their responses to the teacher's changing pedagogy which led to the opportunity for further contextual change. It is also possible that Sam's and Emily's revisions of their environments were responses to changes in their institutional space modelled by their class teacher. Put in another way, Sam and Emily may have changed their environments in response to the teacher's model of change, for example by adapting the parameters of composing Task 1 and by increasing the range of computer-based resources available between Tasks 1 and 2. In the light of this, it is evident that teachers and policy-makers

need to recognise the possibilities of different ways of working, such as those highlighted by Folkestäd (1996), and to provide support for the varied needs of individual learners. However, this conclusion also suggests that students need to be given the freedom to find and work with individual computer-mediated solution spaces that support their existing approaches to musical ways of working. This should also be reflected in the construction of composition tasks that avoid closed problems or standardised outcomes. Furthermore, in the current climate of 'normalised individualism' noted above, and with schools being judged according to their ability to foster Western classical values in their students (Tillman, 2004), it is vital that policy-makers acknowledge and value the diversity within and between institutions. Sam's and Emily's experiences of institutional space suggest that their compositional development proceeded in spite of the prevailing institutional culture rather than toward it.

The importance of varied contextual opportunities

Secondly, we have seen that the nature of both Sam's and Emily's composing environments changed as they explored different opportunities available to them. Across the two tasks, both students worked in a series of different locations, with a range of resources and within different tasks. Sam's underlying exploratory way of working placed him in a strong position from which to exploit the different opportunities available to him. Emily's reluctance to work within the initial constraints of the task allowed her to expand her ways of working first onto the piano and then into her self-constructed computer-mediated environment. Both students perceived the stylistic restrictions placed on them by the tradition of school music. Throughout the study, as the restrictions placed on location, resources and task were lifted, their ability to compose musical responses to the brief increased. This increase in contextual opportunities was contingent upon a parallel increase both in the range of opportunities presented by the task and also the variety of tools available to students for use during composing. Thus it seems that students' freedoms to find and work within their chosen computer-mediated spaces relies upon a range of spaces being afforded by the classroom environment. In this way a range of contextual opportunities, made possible through varied classroom tasks and physical resources, may be a condition for any meaningful compositional development in this context. Savage (2004) supports the notion that technology offers a wide and stimulating range of opportunities for imaginative composing. However, the landscape at the present time seems to suggest this is rarely the case in school classrooms (Savage 2010). Thus more work is needed to increase the range of resources available to students in schools.

Furthermore, in the light of recent developments in software and hardware additional research is needed on developing pedagogy to support the use of computer-mediated environments, and students' different approaches to the use of ICT when composing.

The importance of recognising computer-mediated composing as a distinct musical skill

A third point to note in Sam's and Emily's development is that their composing processes and ultimately their development became increasingly inseparable from the computer-mediated composing environment in which they were composing. Across all three phases, their ways of working developed alongside the range of technologies they employed. For Sam this started out as working on paper, moved through an exploration of the *Cubase* workstation, with work at home and then towards his use of a saxophone with *GarageBand* and a microphone. Emily began work on her piano at home and, despite a brief interlude when she used the *Cubase* workstation, she moved from this onto an electric piano with *Logic* and an Apple computer. The different environments ultimately created are distinctive in terms of the opportunities presented by the resources and the degree of dynamic interaction with students' existing musical skills that they provide. As both environments were conceived of by the students themselves, this suggests that expertise in computer-mediated composing may be a musical skill in its own right. Such as skill involves both the selection and use of appropriate technologies in addition to proficiency with a particular piece of hardware or software. Savage (2004) demonstrates the importance of recognising music technologies as instruments through Alex, a computer-based composer whose use of a Nord modular synthesiser and a TR707 drum machine allowed him to explore worlds beyond his experience of school classroom music. Unable to play a conventional musical instrument, Savage presents Alex as an example of how music education has to change to include these new worlds and continue the process of democratisation promoted in recent years (Nwezi, 1999; Allsup, 2002; Tillman, 2004; Green, 2008). While, in some senses, the issues raised by the irrelevance of institutional education in Alex's experience are still in evidence, the current research suggests that digital technologies may be providing a new space in which students' musical development proceeds in spite of these constraints. Furthermore, Sam's and Emily's stories suggest that this development may impact over time on practice within institutional space. Further research is needed to develop our understanding of the nature of this impact through 'emancipated space' and 'shared space'.

The importance of student ownership and participation as part of education in democratic society

A fourth significant strand running through Sam's and Emily's compositional development is the importance of students' ownership of practical music making as an aspect of education within and towards a more democratic society. Looking back to Section 7.5, I presented Fölkestad's typology of informal learning. In his fourth aspect of informal learning, he suggests that such learning tends towards the practice of making music rather than learning how to make music. Building upon this, I propose that one of the reasons informal learning, as expressed through the musical futures project (D'amore 2009), has been such a popular initiative with both music teachers and students is that it takes the focus of classroom composing away from reified knowledge. In this way there has, arguably, been a democratic shift away from a centralised and elitist construction of music education practice which privileges musical value systems based on the works of white male European composers (Ross 1995; Gammon 1996; Tillman 2004). In addition, however, the current study suggests that a further and subtler shift towards democratic practice may also have occurred. This change is illustrated by Sam's and Emily's work in emancipated space, which ultimately produced systemic or institutional development through exchanges which occurred in shared space. This institutional development was not solely contingent upon linguistic exchange or reified knowledge. Instead their contribution to the development of the institutional space of the classroom was made by manipulating culture directly through the 'symbols' of music and technology. Thus, rather than employing language, a developmental progression in emancipated space might empower students, who may also be disenfranchised by linguistic interactions, to participate meaningfully in the construction of society. This notion reinforces the need for practical music making to lie at the heart of music education in democratic societies. In fostering compositional development in computer-mediated environments through direct interaction with the materials of music, including the sounds, tools and conventions, and in leaving space for students to find emancipated ways of working outside the constraints of institutional space by drawing on their personal musical experiences, music teachers may be positioned to promote a discourse which may foster social equality and allow for meaningful interaction directly between students and society. Further research is needed to investigate the links between development in emancipated space and student participation in the democratic construction of society.

The importance of time

The final strand emerging from the above discussion of Sam's and Emily's compositional development is the importance of time both for exploring toward points of discovery as part of serendipitous development and also for developing a more personally meaningful environment in which to work. This is particularly significant in the current climate in UK education where studies have shown consistent reductions in the time allocated to music in school timetables (Ofsted 2009). Without the time within the curriculum for students to explore personal, emancipated and shared space, it appears that the development both of students themselves and of music education in general may stagnate. Pressure from school management in the light of Ofsted's refocusing of their inspections towards 'progress' in 2010 (Ofsted, 2010) has led, in my own experience, to teachers being required to account for progress made in lessons during intervals as small as 20 minutes. Such pressures threaten to force students' patterns of development increasingly into constraining institutional space, potentially compromising meaningful development and fostering the uninspiring and overly theoretical approach to composing referred to in numerous GCSE examiner reports (e.g. Edexcel, 2007). Furthermore, the relationships between students' explorations and work in extended spaces, that appear to facilitate democratic participation, suggests that without adequate time, students' musical voices in school may be under threat. If Sam's and Emilys' processes of development reflect that of other students in the UK, then this study underlines the importance of safeguarding the time set aside for music education in order to allow for the emergence of musical composing communities. Thus further research is needed to examine the importance of time for exploration as part of students' processes of compositional development.

Synchronous multiple video as a window into students' worlds

A further aspect of the current research that I would like to revisit is the synchronous multiple video tool developed as part of the study and which underpins the digital methodology. As noted in chapter 3, the current research would not have been feasible in its current form without the development of this tool due to the need for students to retain control over our discussions of their composing processes, as well as the requirement of interviewing them soon after their composing sessions. The digital methodology developed in the current research allowed students and teachers to be more deeply involved in the research process. As well as empowering them to discover and tell their own stories, it permitted them to speak both through language and music. As

demonstrated in the current study, systems of this nature hold the potential to empower teacher and students in investigations of their classroom processes, while preserving a naturalistic context. In light of this capability, the positive outcomes of the current research suggest that more research is needed to expand the potential of such systems and to promote the voice of those closest to compositional development in classroom communities.

Methodological reflections

In the next section I will highlight the implications of the current study for practitioners. Before this, however, I will first reflect on the methodology of the current research. After considering the strengths of the approach taken, I will also consider several ways in which future research could build on the lessons learned during the current study.

I will start by noting that the current study was successful: data were collected successfully in the challenging environment of a classroom and provided the necessary evidence to answer the research questions. In so doing the current research contributes to our understanding of compositional development in computer-mediated environments and presents a new theoretical model that elucidates the four contexts in which Sam and Emily worked. In addition, the current study also contributes a new digital research tool for investigating classroom contexts in the form of the synchronous multiple video system introduced in Section 3.3.

During the study I also noted several challenges which would require consideration if the research were carried out again. Firstly, having some knowledge of the significance of Sam's and Emily's music-making activities outside school allowed me to make connections between their personal approaches to composing and their work in school. However, in the current study, details of their work outside school were only visible in the interview data. Thus, while this could be triangulated over time, I relied solely on the students' own descriptions of their experiences. A future study could reduce this reliance on students' own reported experiences by further exploring their home context. This could be done through the use of personal diaries, including photographs and videos as well as observation of their music making outside school and interviews with parents and music teachers. In particular, this would increase the reliability of any findings relating to 'hidden' or unarticulated strategies that are used outside the classroom.

Secondly, the current study relies upon school documents and interviews with teachers for insight into the wider school context. While these data were enough to provide an

indication of some ways in which school structures and processes may impact upon students' classroom interactions, the findings suggest that one such interaction is their mediation of the way students see opportunities for development and they act on those opportunities. The scope of the documents and interviews in the current study was limited due to our focus on classroom composing processes. Thus the tacit freedoms and constraints operating in the school social and cultural context merit further consideration than was possible during the current study. This would allow the researcher to construct a richer account of the school context, in turn permitting a deeper understanding of how the wider school culture is implicated in students' compositional development. Nevertheless, the time and resources available constrained the degree to which this was possible during the current study.

One way in which further time could be saved within the current research design would be to reduce the number of students involved at the outset of the study. As the current study progressed it was clear that the richness of the data and the complexity of understanding students' developing composing processes required closer examination of fewer individuals. The original design was thus amended accordingly. This decision increased the likelihood that students experienced contexts and processes of development not visible during the current study. On the other hand, these may be revealed during further research. Moreover, the current study is not intended to be comprehensive but provides a model to stimulate further investigation and to critique existing models of development. As it is, the current study gains from the depth of understanding achieved through a closer examination of Sam and Emily's ways of working, and this decision was commensurate with the ethnographic methodology discussed in Section 3.1.

Thirdly, the methodology in the current study employs a VSR interview process as a central feature of both data collection and analysis. This positions students as researchers and even, at times, as fully active participants in the research, which is the deepest level of involvement according to Flutter and Rudduck's 'Ladder of Pupil Participation' (Flutter and Rudduck, 2004 p. 16). However, as well as the possible Hawthorne effect (pupils change their ways of working in response to the knowledge that they are being studied), this level of engagement will itself impact upon students' learning and development. According to Flutter and Rudduck, pupil consultation is likely to establish a more positive learning culture as well as fostering the feeling that they are valued and respected members of the community. In the light of this, the impact of the process of doing the research on Sam's and Emily's development was noted. At the same time, the literature in

this area makes a strong case for embedding student consultation in everyday school practice. In the current study the use of pupil consultation mediated through the use of video, over time became arguably just a further feature of good practice in the classroom. Indeed, Emma's PGCE assignment also employed video as well as other tools as means for reflection and development. Thus, while the possible impact of the use of a VSR technique is apparent, it is not seen as a significant threat to the reliability of the findings as the classroom remained a naturalistic setting.

Fourthly, the current study employed a deductive and inductive process of analysis. However, the strategies ultimately identified map well onto the existing literature in music education. This growing body of literature has failed to identify any significantly different music composing strategies for several years (Wiggins, 2011). Thus, as it is likely that this literature now represents a good understanding of composing strategies, the process of analysis employed during the current study could be improved by explicitly introducing deductive codes into the frame at an earlier point. Furthermore, the current study has exposed the significance of the interaction between students' composing contexts and the qualitative nature of their strategy use. An earlier reduction of the types of strategy being used, drawing on existing literature, would allow greater attention to be paid (within similar constraints) to the wider composing contexts of home and school as discussed above.

Finally, while the current study attended to the changing nature and the frequency of students' strategy use, it was only concerned with the relative importance of instances of strategy use, through the process of critical incident sampling based on students' reflections.
The analysis technique in the current study focused on instances of strategy use rather than time. Thus it could be that certain strategies were more significant in Sam's and Emily's composing processes than was revealed in the current study, as they were use for longer periods of time. In order to address this issue a time analysis could be carried out, similar to that of Kratus (1989). In his study, Kratus noted the length of time for which each strategy was used to gain an understanding of students' composing processes.

Thus, while the current study was successful in answering the research questions, there are ways in which it could be improved if carried out again. Having presented some implications for policy and pedagogic practice and shown how the study could be improved if carried out again, I will move on to some concluding remarks.

8.3. RECONNECTING WITH MUSICAL CLASSROOMS: PROVISIONAL IMPLICATIONS FOR PRACTITIONERS

In the previous section I presented several themes that emerge from the new model of compositional development introduced in Chapter 7. As the current study arose from a practical problem that I faced in a secondary music classroom, it is appropriate to summarise and refocus these strands as implications for practitioners. This sits in contrast to the previous section, which connects instead with the wider educational community. These connections with musical classrooms are presented as 'issues to consider' due to the small-scale nature of the current study. As discussed in Chapter 3, practitioners will need to construct their own naturalistic generalisations by recognising similarities between the current research and their contexts.

Firstly, teachers may like to consider how opportunities for students to create personal spaces are made possible in their classrooms. The current research suggests that teachers can support students' musical development by permitting them to find and work with classroom resources for themselves, in order to develop ways of working that build on their existing approaches to music. Furthermore, the research suggests that learning objectives, which focus students towards narrow and standardised outcomes, may hamper meaningful musical education.

Secondly, the need to foster personal space also has implications for resourcing musical classrooms and when allocating curriculum time for composing. The current research suggests that teachers need to continually increase the range of technology recourses available to students, in ways that allow them to build on their existing skills. This will likely involve a range of approaches in different contexts. For example, a student who can play an acoustic instrument may benefit from a microphone and computer software that allows for the recording and manipulation of their performed musical ideas. However, students that are familiar with game console controllers such as guitar hero [148], Wii controls[149] or the Kinect motion sensor[150]are likely to benefit from technology-based contexts that allow them to build on these different modes of interaction. Sam and Emily also needed time to develop both their compositions and their emancipated space. Thus, it is also vital that music is safeguarded from overly burdensome institutional demands for

[148] Distributed by Neversoft (2010) this is a game controller that is shaped like a guitar.
[149] Made and distributed by Nintendo (2012) this is a hand held button and motion controller.
[150] Made and distributed by Microsoft (2012) this is a camera-based motion sensor.

incremental progress measures[151]. In the current context of music education in the UK this emphasises the need for teachers to adopt a critical stance toward policies that promote short-term visible progress, which can threaten deeper, more meaningful development. In addition this will require that teachers continue to articulate the dangers that such approaches pose to meaningful musical education.

Thirdly, teachers need to consider the notion that expertise in computer-mediated composing may be a discrete musical skill, which plays a key role in current music education. To this end they need to ensure that they obtain appropriate professional development as well as considering the degree to which music technology features as an integral part of learners' experiences in their institution. This also has wider implications for the providers of initial teacher education, as well as school leaders, who will need to consider the extent to which they are supporting the development of practice that sees the use of music technologies as an important part of music education.

Finally, the current study suggests that teachers should consider the degree to which they provide students with practical music-making opportunities. Such an approach is likely to support both a broader and more democratic music education, as well as institutional development through exchanges between teachers and students which occur in shared space. In this way teachers may help to realise the potential of music as a vehicle for the development of wider society.

[151] See TDA (2012) for examples of this practice being promoted in schools.

8.4. A FINAL THOUGHT

As I have worked on this project over the past four years, I have passed through many developments of my own and some of these are included in my discussion of the findings. Alongside these changes many musical interludes, too numerous to mention, have come and gone. Each in its own way has characterised and mediated my evolving identity as a musician, teacher, researcher, father, husband, son… Moments of expansion have arisen and passed as my own explorations of what it means to perform these roles in my own context have proceeded, evolved and been constrained. I have been enabled, discovered, been transformed through interactions in my own computer-mediated environments and made connections back with institutional spaces. Throughout this process, however, I have been touched by the dedication of the teaching staff with whom I have worked, inspired by the ingenuity and passion of the students who have given their time and have been motivated by the positive change that has transpired. Such change has often proceeded in spite of changes in wider society, which have impacted on the contexts within which they work. So, as I conclude, it is only fitting that I dedicate these final words to such colleagues.

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10. **APPENDICES**

List of appendices:

10.1. APPENDIX 1 RESEARCH INSTRUMENTS/EXAMPLES OF LIVE DATA

DVD contents:

SMV demonstration video (SMV example)
Full screen video playback file - class (SMV example)
Full screen video playback file - screen (SMV example)
Full screen video playback file – student mic (SMV example)

Example of a draft interview transcript

0:00:00	According to my calculations, (looks at video) ### that's just for me remember nobody sees t It's just so that I don't have to write anything down now. These are the lessons that we've had
0:00:13	OK
0:00:15	According to me we did
0:00:16	One then
0:00:17	One then which was Easter that's week one, week 2
0:00:23	Ok Yeh
0:00:25	That's the second week after Easter. So then there's been 5th May that was last week
0:00:32	But I think two of those lessons I did like nothing in that I can remember
0:00:34	OK, I seem to remember last...er...yeh you'd moved on to Sibelius
0:00:39	Yeh
0:00:40	that last time
0:00:41	yeh
0:00:43	and then er...that's last week, that's Monday of this week and that's yesterday
0:00:49	Yeh OK
0:00:51	So we've got those three lessons to cover
0:00:52	Mmmhmmm
0:00:53	In whichever, I don't know whether..have you...No...on Monday you didn't use the computer
0:00:59	No and I don't think I did the week before...I'm not sure
0:01:03	The previous...do you..I have down that you used hold on it's one and 4 computer 4 in the se half of the lesson
0:01:13	OK yeh
0:01:14	We can have a look anyway..so we've got half of that lesson. I think it was towards the end a then ....so that's 5th May...(sorts out camera) So this is the 5th May erm, it's just hooked up in slightly different way. Instead of using a screen I'm using this computer to work through so E works in exactly the same way. We'll just drag it along so if I start us off by finding the right and if you want to erm control it from there on in.

0:01:59	Looks like that is a Sibelius. That's you isn't it
0:02:04	Yeh me sorting out all the MIDI stuff
0:02:07	Dance of the...
0:02:07	Dance of the ladybirds
0:02:08	....Ladybirds cool. So if you want to start from there. We've got half and hours worth to do th
0:02:13	OK
0:02:13	Basically, I need to know what you're doing why you're doing it and how you are doing it.
0:02:18	OK
0:02:19	And those will be the questions that I ask all the way through just to keep you..keep you wor but that's what we're trying to do so
0:02:23	OK YEh
0:02:28	Yeh at this point I was just opening from the stuff I did like I saved it on the memory stick. I c really do any work at home. So
0:02:38	This is since the previous week is it?
0:02:39	Yeh
0:02:40	Right...so you're not coming to the lesson thinking OK I've got that work I've done at home It purely
0:02:44	No..I came into the lesson and I just sort of was thinking about what I could do to the intro b I only had 2 bars so I thought I coudl lengthen it out a bit
0:02:53	Right
0:02:56	Erm...why, why were you thinking about the intro in particular? Was theer any?
0:03:01	Because I think a better introduction I like sort of lead into the actual melody a bit better but I no idea in mind of what to do it was sort of a bit of trial and error to see
0:03:12	Is that because other people had been doing it or a teacher had suggested it or was it just an i you had?
0:03:16	Erm...bin suggested it and I sort of thought I should make it a bit longer as well.
0:03:24	Right...Ok so how ddid you go about...Is this what you are doing here? you're...
0:03:32	Oh..Oh yeh this is still the trying out the ...cause there was for a while that it did't upload pro
0:03:40	Ah right so initially when you got to it
0:03:43	Yeh
0:03:44	Do you mind if we just maximise maximise that screen...the smaller one erm see in the top rig hand corner
0:03:49	This one
0:03:50	Not that one the one below it
0:03:51	That one
0:03:52	That's it perfect then we can see what time it is so it's 4.30 in America. It has to work on Amer time this computer you see its' 5.00 at the moment not actually 11.00. It has to work on Ameri time.
0:04:06	Ye I just added in more bars
0:04:10	That's using the sibelius?

0:04:12	Yeh
0:04:13	How did you...did you use the shortcut key or was?
0:04:16	Erm no...I went to create - bar and other then I just typed in the number of bars I wanted.
0:04:22	Right
0:04:24	erm
0:04:28	so this is at the beginning the introduction?
0:04:30	Yeh this was just a trial and error becuase erm...at eth beginnig of the piece there was like, I w trying to do like a sort of cannon thing
0:04:37	Oh right
0:04:39	because I thought of using like erm devices that I hadn't used yet.
0:04:46	So why is that?
0:04:47	I dont' know I just sort of thought...i was basically just trying things out to see if they worked this worked so I kept it.
0:04:57	at the introduction?
0:04:57	Yeh
0:04:58	Ah ok...Is it...is there piece that you've done which is cannon or that something that you just k about or....?
0:05:05	It's...erm just somehting I know about yeh..
0:05:07	OK
0:05:11	Yeh and I started doing the bass line like...just like erm chords I and V.
0:05:21	OK
0:05:22	I didn't use that many different ones because it wasn't that kind of intro.
0:05:27	So that...
0:05:32	Yeh that ...
0:05:34	I'm just thinking how did you decide on chords I and V?
0:05:36	Again it was a sort of like...I didn't use that many different notes from the chord IV so I just u chords I and V.
0:05:51	Right but there wasn't any...er was there a process you ewent through to decide on I and V or just '1 and 5!'?
0:05:57	No...Just...Yeh it was like that actually
0:06:00	OK (Laughs
0:06:01	Yeh and I think that's all I did for the rest of the lesosn just listened through that was it.
0:06:07	So no editing?
0:06:08	No
0:06:08	Listening through...were you listening for anything in particular?
0:06:11	Because i've listened to the piece so many times it didn't sound as if like there were any notes sort of clashed.
0:06:19	Right
0:06:19	They all sounded a bit natural to me. So I wanted other people to listen to it so if they noticed

	case I hadn't picked up on it.
0:06:26	Right...so did you have other people listen to it?
0:06:29	erm...I think so...yeh and other people listening in the next lessons as well. But that's it yeh.
0:06:37	So who...was somebody listening in this lesson i'm just interested in?
0:06:41	I'm not sure. There was definitely in the next lesson I had on the computers
0:06:44	Well, we can probably look through can we? and see ...where are you working? are you work computer 3?
0:06:50	Yeh, I'm not sure
0:06:59	No, I dont think anybody did in this lesson but they definitely did in the lesson I had yesterd
0:07:06	Right so I'm just thinking how long did you spend working on the introduction? Roughly wh this is the start...
0:07:16	yeh
0:07:18	This is getting it set up
0:07:21	Yeh took a while for that to get set up
0:07:23	8.10 Ok adding bars in ...(looking through
0:07:29	That was just setting it up
0:07:30	Ah right Ok so we have
0:07:32	It was...most of that lesson was setting it up
0:07:33	you had about 10 minutes at the beginning where it now whyas it was there a reason it wasn' working?
0:07:42	erm saved it as 2 different files because I wasn't sure which one woudl work with teh comput
0:07:47	This is at home?
0:07:49	Yeh
0:07:51	Right
0:07:51	I saved it as a MIDI file and a sibelius score because we have Sibelius 3 at school and we have Sibelius 5
0:07:59	Right
0:08:01	So I had to save it as an older thing.
0:08:04	I See## right so th first 10 minutes was trying to get the work that you've done at home into t
0:08:12	Yeh
0:08:14	Right I seeo thenthis is now workign on the barshsomething hat's this here? There's a change where the can you see how.
0:08:33	Oh erm, i think as well from erm.
0:08:37	hat changes to that and then that
0:08:39	ecause I had I add like think they're called acciaccaturas or grace notes
0:08:43	right
0:08:43	and because I added them at homehis computer recognised them as like semi-demi quavers c to change that around because they had it in a different sort of
0:08:54	Righto you changed them too?

0:08:58	What is was originally because I also had like staccato notes and they halved the size of the n originally so I had to sort of change it around a bit.
0:09:12	So that's what you're doing at this point is it?
0:09:13	Yeh, I was just searching through to see what
0:09:18	I see there yeht changes to race notes and ermo you do that iin a couple of places?
0:09:34	Yeh
0:09:35	And then that looks like a clef change?
0:09:36	Ermeh cause of that as well the clef changes weren't included when I transferred from the me stick so I had to put them in as well
0:09:43	So that's a similar thing where it's
0:09:45	Yeh
0:09:46	Rightlef changesk
0:09:54	So actually at home you were further on than you are at the moment (referring to screen
0:09:58	Yeh mmmmmI was just getting the erm the one I sort of done at home onto this computer so could work on that one in this lesson
0:10:08	Yepow so this is where you start work on the inttoduction is it?
0:10:13	yep
0:10:14	and that's at 41.
0:10:16	Oknd then working on that ice and fast tohout when you've stopped work on it ###
0:10:48	looking through
0:10:53	Yeh - it was just to the end of the lesosn
0:10:56	Ok so not so much listening there?
0:10:58	No
0:10:59	Mostly work on the intruduction
0:11:03	Yeh
0:11:04	Right
0:11:06	#### so that brings up to yesterdayNow did you do any work at home betwene last week an yesterday?
0:11:18	No
0:11:18	You didn'tight so if I go to the 12thhich is yesterday Oh - oh yeh it was lesosn 2n theory that s be exactly teh same piecethe start of the lesosn will be roughly there
0:11:48	I was on the second computer
0:11:51	Yeh theer we goyeh so that's that one
0:11:54	Thats' it yehOk
0:11:55	Right fire away e're not 'm not playing through there but you can go ahead and contronow y spent the whole hour on the 12th
0:12:03	yep
0:12:03	Rightso did you know what you needed to do or what you wanted to do at this point?
0:12:09	Ermust to neaten things up a bit thats all really

0:12:12	that was your plan was it?
0:12:13	Yeh
0:12:15	erm think this was just again sorting out cause I didn't sort out all of the bit from the last lesso
0:12:27	From the work that you've done at home?
0:12:30	Yehrom erm like the grace notes again
0:12:31	Rightell just talk me through which bits you're doing here and then I won't get confused as i l ato there's grace notes again?
0:12:40	Yehand like dotted crotchets, they sort of tied over instead of wanted like a dotted crotchet ra than a crotched tied with a quaver so I sorted that out.
0:12:56	OK yeh
0:12:56	Erm I sort of changed the intro because miss suggested having a different time signature wou probably bost the marks so my intro was in 4/4 and then by the time it got to teh melody bit went to 3/4
0:13:14	Rights this waht you're doing at the moment?
0:13:15	yesell I tried 6/8 and then I realised 6/8 is like almost the same as 3/4
0:13:22	yeh
0:13:22	So I changed that to 4/4 instead
0:13:24	how did you realise that?
0:13:26	Erm because I realised that you could fit the same number of notes as if you could in 3/4 so it wouldn't have made much difference
0:13:36	OK Yeh
0:13:37	so it was by seeing it or by trying the notes out on the computer wouldn't let you put
0:13:42	A bit of botheh
0:13:46	Do you think that you woudl have realised that if you had been doing it on manuscript paper
0:13:54	No
0:13:56	You wouldn't ###?
0:13:56	No
0:13:58	OK
0:13:58	cause the computer sort of says you can put this many erm number of notes in here but on a manuscript paper you've got nothing to sort of
0:14:10	You doyeh yeh
0:14:12	erm so yeh and then at this point I was doing like this like one instrument doing like doing a and the other one doing a response sort of thingas I know.
0:14:22	Rights this new?
0:14:24	er yehause I changed the intro again
0:14:28	OK
0:14:29	Erm was just thinking of techniques
0:14:30	that'sorry thats after you've done the 4/4 bitou changed it again?
0:14:34	Yeh.

0:14:35	Right
0:14:36	Is this the introduction then that were looking at (64
0:14:41	Yeh hang oneh like this bit here is like a call and then a response.
0:14:46	Ah Ok
0:14:48	Watching
0:14:55	Where did that [call and response] idea come from?
0:14:57	I just thought of it like after the music lesson we had the week before.
0:15:03	The 5th right
0:15:04	I was just thinking of loads of techniques I could use to make it a bit more interesting
0:15:13	Cool
0:15:16	(Watching
0:15:22	and then with the other cause I had lots of instruments is there were like two doing the call ar response thing and I had the others doing like the triad like one doing one note and the other
0:15:37	rightnd this is still in the introduction?
0:15:40	Yep
0:15:40	So are you changing anything at this point or
0:15:43	I don't think soot at the momentYeh that wasI think I just finished teh introduction by then
0:15:55	Right
0:15:55	And I was just listening to the piece over and over again.
0:15:59	It looks like a clef change there
0:16:03	Yeh again because I decided to put the section A again cause I thought that going from ermte change like from E minor back to G major for the outro was a bitthe coda was a bit strange so in section A again afterwards
0:16:19	Right so this is teh ending now.
0:16:21	Yeh
0:16:24	So is that what you're doing at this point?
0:16:27	Yeh
0:16:28	and how did you decide that the E minor to the G major was strange?
0:16:31	i thought ermll bringing in the section A again woudl be a bit better as well because don't kn just like I thought going from the key change straight to the ending was a bit strange so I add section A again
<1013566>(0:	When you say you think it would be betterhy?
<1017556>(0:	Because like all other pieces I've seen they've sort of done like the first key change then chang and then gone back to it again
<1025122>(0:	Right
<1026929>(0:	So I sort of followed that
<1028812>(0:	Cool
<1036149>(0:	So is this still working on the ending?

<1042412>(0:	Yeh erm this is ermi realised this bit again with the whole staccato thing with the notes it was meant to be like a crotchet staccato'd but when it came up on the screen it came up as just a quaverso I changed all of that bit like
<1057689>(0:	right
<1058913>(0:	so that's when you did it at home was that t was a crotchet was it?
<1070263>(0:	Yeh
<1071558>(0:	Rightso it was just showing
<1072653>(0:	It was staccato but on here it showed up as just a quaver.
<1075246>(0:	Hmm
<1078480>(0:	Bell
<1081547>(0:	Oh and in this lesson I also tried other techniques of the bassline because all the time through my piece it was um cha cha
<1091351>(0:	yeh
<1092429>(0:	and I tried other methods like Uummmmm cha cha as well cause i though that would also ga more marks and make it a bit more interestign than just the same thing whe whole way throu
<1100665>(0:	yeh
<1101615>(0:	so is that what you're doing at this point here?
<1103648>(0:	Yeh
<1105756>(0:	Yehthis is what I was just generally doing
<1125681>(0:	Yeh I sort of made like the bassline it was dotted crotchet, quaver then crotchet instead of cro crotchet crotched
<1139751>(0:	righto you went through and tried that chan
<1141729>(0:	Yeh
<1142821>(0:	what did you think of it?
<1144817>(0:	It workedeh because it was it sort of had syncopation with it as well which is one of the sort c things they were looking for in a waltz so it worked.
<1151424>(0:	Righto how did you go about doing it?
<1153115>(0:	I sort of had it in my head and then just tried it outo
<1158026>(0:	Did you play it in or did you use the mouse to.
<1163656>(0:	Norm I used the mouse to er put the notes in
<1166794>(0:	and did you listen back to it to check it worked or did you look at it and say 'oh yeh that look good' or
<1172454>(0:	Yepeh listened to it a few times just to double check.
<1180189>(0:	OK
<1183406>(0:	And the reason for doing that rying to change the bassline?
<1186231>(0:	Yehwas to give it
<1187635>(0:	Or the reasons?
<1187815>(0:	Yeho like vary it and erm they said that maybe changing the bassline would get more marks was like
<1195728>(0:	Alright coolhat's helpful (noise outside door

<1207016>(0:	Oh that was when I was listening to Jemima's piece and so I didn't do and work for like a cou minutesYeh
<1215629>(0:	Ah Ok so this is at 67
<1218757>(0:	And I think I didn't do any work for the rest of the lesosn cause I was filling in the assignmen like not the assignment brief but like ermeh
<1227880>(0:	Right yehhis thing (pulls sheet out
hang on i th: I've got it.	
<1237730>(0:	Yeh that
<1243307>(0:	That one
<1244511>(0:	Yep
<1247177>(0:	So decided my waltz will have a slow harmonic pace, balanced rhythms and possibly syncopationMy bassline will be structures as Um Pa Pa with a strong first beat 3/4 time Instruments I used was descant recorder and pianoI used binary formWhy descant recorder a piano?
<1262220>(0:	ermiano because I could do the inversions and the chordsAnd descant recorder because it's th instrument I'm the best at and I know it really well i know like how what things you could pl the descant.
<1276022>(0:	Cause you play of course
<1278295>(0:	Yep
<1280378>(0:	And the slow harmonic pace, balanced phrases and syncopationWhere was that from?
<1283952>(0:	erm that was when we did the booklets and on the fromnt we had to write things what a wal would include so I put that in
<1292947>(0:	and um pa pa with a strong first beat
<1296250>(0:	mm
<1296673>(0:	Where was that from?
<1297290>(0:	That was just like listening to other pieces and they all just seemed to have um pa pa at the beginnings.
<1302289>(0:	OKo that was from the work that you did at the beginning like with erm Mrs Wright?
<1304627>(0:	Yeh
<1310617>(0:	(reads from booklet ###
ABACA wit and codaso y added teh introduction coda	
<1315836>(0:	Yep
<1317658>(0:	And the reasons for having the introduction and coda?
<1319040>(0:	erm like other pieces as well they had like a big introduction and a coda not just having ABA
<1327897>(0:	Right so was that to do with teacher input or was that pieces that you've done outside school that?
<1334422>(0:	Bit of botheh
<1335556>(0:	OK

<1335760>(0:	###listening to it did you think it needed an introduction and an ending or ?
<1342638>(0:	Ermeh I thought it did cause going straight into it just seemed like it needed to sort of lead up rather than just starting it
<1353168>(0:	Any other reasons that I've missed?
<1357170>(0:	No on't think so No
<1359563>(0:	Cool That gives me lots to go onhat's really helpful
<1363669>(0:	So just as an overall summary of this if iou stared working off in the booklet and then moved Cubase is that right? and did some work on Cubase
<1373122>(0:	yehmmm
<1373265>(0:	and but then you left the Cubase stuff
<1377129>(0:	Yeh
<1377860>(0:	and moved onto sibeliusWhat was the reason for the shift?
<1381010>(0:	Cubase I didn't like this whole seeing a line and that I didn't know if it was in rhythm or notw Sibelius I can see the notes on the page and sort of see what it looks like
<1394128>(0:	So would you say for you Sibelius is more detailed?
<1398204>(0:	mm
<1399366>(0:	And Cubase you can't see what's going on as easily
<1401631>(0:	Yehnd Cubase there was too much MIDI files and other things got so confused
<1404216>(0:	OK
<1405916>(0:	Wheras Sibelius It was sort of put the not here and that's it none of this like mucking around
<1411153>(0:	OKhat's cool
<1412823>(0:	And as well for Sibelius you don't necessarily have to be able to like play amaing stuff you ca insert it rather than on Cubase you have to sort of learn to play it<1424301>(0:23:44
so youight sc have to play on cubase bu don't on Sibe	
<1427876>(0:	Yeheh
<1429912>(0:	That's interestingOKcool and so when you moved it onto Sibeluius you also haveou have Sib at home?
<1434762>(0:	Hmmmm
<1435486>(0:	have you had that for a while?
<1436159>(0:	I got it during while I was doing the waltz
<1439099>(0:	Ah OK
<1440492>(0:	And my dad got the book of mastering Sibelius so i had a little read throug that as well
<1444957>(0:	OK Cool so when you shifted over from Cubase to Sibelius did you already know what Sibel could do?
<1450438>(0:	Nope
<1450792>(0:	You didntad you got it at home?
<1452416>(0:	Well I pra did it at home and then when I got to school I realised we have Sibelius ###

<1457768>(0:	OKight so it was kind of that whole shift in school from Cubase to Sibelius was parallelled wi getting Sibelius at home and figuring out 'Hey there's this program that can can do this'
<1468701>(0:	Yeh
<1470399>(0:	Coolo havedo you think Sibelius has been helpful for you then?
<1473696>(0:	Yeh I think It's been much more helpful rather than Cubase cause it just confused me Cubase
<1479653>(0:	Ok
<1480230>(0:	RThe next project is going to be a disco one do think that you'r going to do that on .
<1485223>(0:	ooooI think I might do that on Cubase because Sibelius don think Cubase you could add sort loads of things andI don't think it's more of a like seeing the notes on the screen sort of thing a being like in time cause disco
<1505382>(0:	It'll be interesting to seeeh
<1507175>(0:	yeh
<1507623>(0:	Alright that cool thank you I'll let you get to your lesson
<1509440>(0:	OK Thank you
<1513215>(0:	That's really good

Example of semi-structured interview question instrument

Semi structured interview prompts (VSR)

1. What are you doing here?
2. Can you explain what you are doing at that point?
3. Why you're doing that?
4. What is the reason for doing that?
5. How did you do that?
6. Can you tell me what you did to do that?

Example of semi-structured interview question instrument

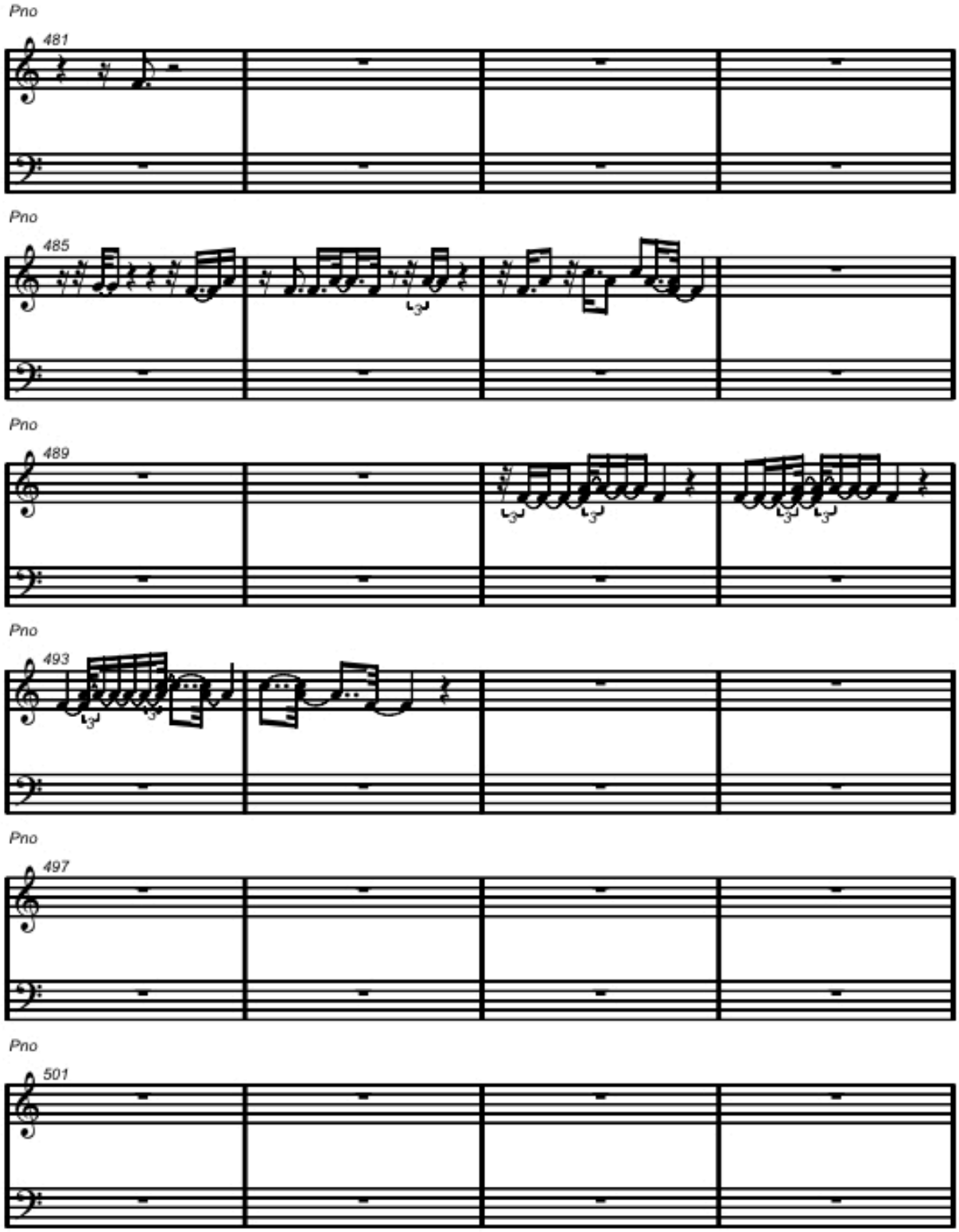
Semi structured interview prompts (River of experience)

1. What were you doing at this point
2. What does that mean?
3. In what way do you mean _____?
4. Why do you think that?
5. Why did you put this at that point on the river?
6. What did you do next?
7. What do you think that meant to you at the time?
8. What does that mean now/How do you think it might link to what you have been doing in school?.

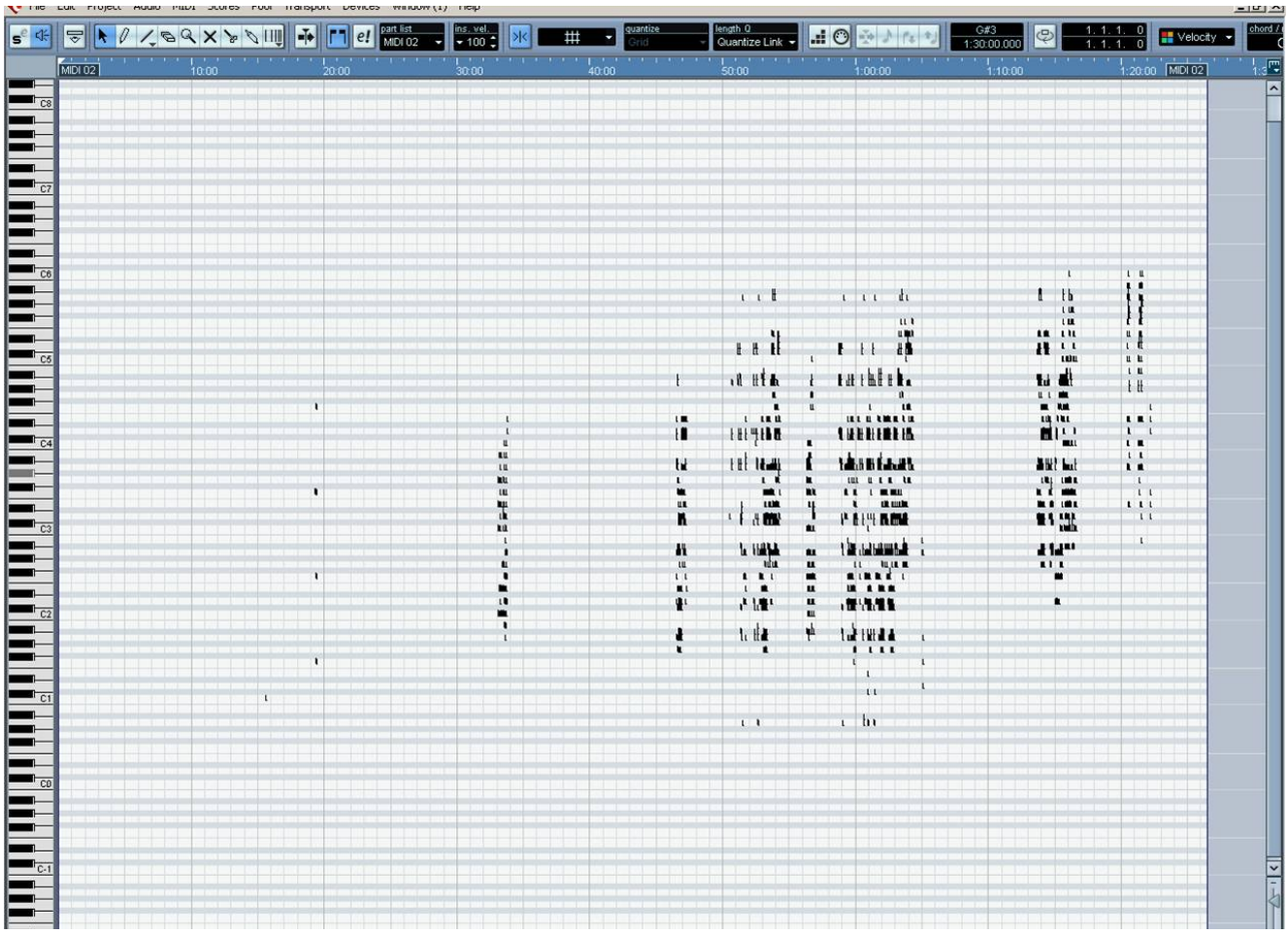
Example of an excerpt from a printed MIDI activity file (txt)

Track	Start_Time	Pitch	Duration	Dynamic
0.0	1921.29	65	0.27	38
0.0	1936.39	67	0.55	18
0.0	1939.15	65	0.33	34
0.0	1939.73	69	0.34	62
0.0	1940.2	65	0.54	37
0.0	1941.04	65	0.37	45
0.0	1941.43	69	0.34	37
0.0	1941.88	65	0.43	72
0.0	1942.59	69	0.52	68
0.0	1944.12	65	0.4	54
0.0	1945.14	72	0.38	22
0.0	1945.56	69	0.47	49
0.0	1946.44	69	0.47	37
0.0	1960.08	65	1.02	43
0.0	1961.99	65	1.18	71
0.0	1964.04	65	1.06	62
0.0	1965.96	65	1.13	48
0.0	1968.03	65	1.07	65
0.0	1969.91	72	1.05	42
0.0	1971.94	72	1.02	60
0.0	1973.82	65	1.35	55
0.0	2222.95	65	0.34	57
0.0	2223.35	69	0.32	39
0.0	2223.7	65	0.59	44
0.0	2224.48	65	0.43	71
0.0	2225.19	65	0.49	67
0.0	2225.91	65	0.36	55
0.0	2226.7	72	0.41	63
0.0	2227.49	72	0.34	96
0.0	2228.23	65	1.13	53
0.0	2230.54	65	10.88	40
0.0	2241.86	72	0.95	58
0.0	2243.32	65	0.93	41
0.0	2244.65	69	0.69	53
0.0	2245.44	69	0.88	33
0.0	2247.03	72	0.71	60
0.0	2247.79	69	0.95	70
0.0	2249.98	69	0.66	34
0.0	2250.69	65	0.75	58
0.0	2251.51	72	0.92	78
0.0	2253.0	69	0.62	63
0.0	2254.4	65	0.61	67
0.0	2255.43	69	0.55	39
0.0	2256.18	72	0.39	75
0.0	2256.94	72	0.96	76
0.0	2258.46	65	0.96	54
0.0	2277.84	72	1.03	66
0.0	2279.83	65	1.14	54

Example of an excerpt from a printed MIDI activity file (pdf conversion)



Example of an excerpt from a printed MIDI activity file (piano roll view)



10.2. APPENDIX 2 DATA COLLECTION SCHEDULE

Fieldwork visits log

Date	Day	Visit	Lesson	Week	Details	Notes
15th January	Thursday	Prelim	1-3	1	Observations for overview of school and department	
16th January	Friday	Prelim	1-3	1	Observations for overview of school and department	
19th January	Monday	Prelim	1-3	2	Observations for overview of school and department	
20th January	Tuesday	P1.1	2	1	Observations for cases	
27th January	Tuesday	P1.2	1	2	Observations for cases	
3rd February	Tuesday	P1.3		1	*Cancelled Snow*	
10th February	Tuesday	P1.3		2	*Cancelled Floods*	
16 February		½ term				
24th Feb	Tuesday	P1.3	1	2	Setup and test of equipment. First work with cases.	Consent forms collected
2nd March	Monday	P 1.4	1	1	Setup and test of equipment. Work with cases. Test VSR.	"Waltz reinforcement – minor scales"
10th March	Tuesday	P 1.5	1	2	Final test and acclimatise session for cases and class.	"Waltz booklet"
16th March	Monday	P 2.1	1	1	2.1	VSR: √
24th March	Tuesday	P 2.2	1	2	2.2	VSR: √
6th April	Easter					
13th April	Easter					
21st April	Tuesday	P 2.3	1	2	2.3	VSR: √
27th April	Monday	P2.4a	1	1	2.4a	VSR: √
28th April	Tuesday	P2.4b	2	1	2.4b	VSR: √
5th May 09	Tuesday	P2.5	1	2	2.5	VSR: √
11th May 09	Monday	P2.6a	1	1	2.6a	VSR: √
12th May 09	Tuesday	P2.6b	2	1	2.6b	VSR: √
13th May 09	Wednesday	Ex	NA	NA	Clear up Phase 3	
4th Nov 09	Wednesday	3.1	1	1	3.1	VSR: √
11th Nov 09	Wednesday	3.2	1	2	3.2	VSR: √
16th Nov 09	Monday	3.3	3	1	3.3	NA
2 Dec 09	Wednesday	3.4	1	1	3.4	VSR: √
9th Dec 09	Wednesday	3.5	1	2	Clear up Phase 4	VSR: √

10.3. APPENDIX 3 EQUIPMENT USED IN THE SMV SYSTEM

Item description	Qty	Cost per unit	Sub total	
MIDI stystem				
Host computer	6	NA	Sch	OK
MIDI yoke	6	0	0	OK
6 pin din lead	6	3.5	21	Ok
MIDIsport	1	100	100	OK
MID splitter	6	8	NA	
PC recorder (see below)	1		below	
Cubase SL	1	80	Own	OK
Audio system				
Host computer	3	NA	Sch	OK
Headphone splitters	3	4.99	14.97	
Room camera 1	1	NA	Own	OK
Room camera 2 (see below)	1	NA	below	OK
Lapel Mics	3	120	Own	OK
Mic leads	3	6	Own	OK
Audio leads (Jack-Jack)	6	6	36	
Audio leads (cam: RCA-Jack	2	6	12	
PC recorder (see below)			below	
Cubase SL	1	80	Own	OK
Video system				
Host computer	6	NA	Sch	OK
Averkey lite	3	32.76	98.28	
Room camera 1	1	NA	Own	OK
Room camera 2	1	39.99	39.99	
VNH240	1	1000	1000	
PC recorder (see below)	1		below	
Video Insight Server	1	60	Own	OK
PC recorder				
Rack case	1	72	72	
Rack unit	1		0	OK
Power supply			76.53	OK
Motherboard	1		0	OK
CPU	1		0	OK
Fan	1		0	OK
Hard drive	2		0	OK
HDD cable				OK
DVD writer	1			OK
Fan				OK
VGA card	1		404.26	OK
RAM	2		67.69	OK
Total			1942.72	

10.4. APPENDIX 4 SAMPLE OBSERVATION SHEET 1

School info:

School	Address	Head	School size	Ages
####	####	Mr ####	1185	13-18

Department info:

Head of music	Dept size	Teachers
Mrs ####	KS3 (Y9) 3 GCSE (Y11 + 12) 2 Music Tech (Y12+13)	Mr #### (FT) Miss #### (PT)

Accommodation:

Teaching rooms	Practice rooms	Technology labs
2 Classrooms	6 Practice rooms	Recording studio/lab

Extra Curricular:

Ensembles	Number FIMT	Instrumental teachers
Orchestra Choir Barbershop Musicals (Rolling program) Informal groups	100 (approx)	Strings (2) Percussion Woodwind (2) Keyboard Guitar

Curriculum:

	KS3	GCSE	A-Level	Other
Schemes/POS	N/C POS	OCR	Edexcel Music Edexcel Music Tech	NCFE
Music timetable	Weekly	2/ week		
Composing timetable	Regular	5/ 2 weeks		

Classes:

KS3	GCSE	A-level	Other
15-20	Y10 = 18 + 15 Y11 = 29	Music Tech = 12 Music = 9	

Integration of ICT:

Computers	Peripherals	Networking	Access
10 Macs (G5) 15 PCs	Computer projector	Yes	In department
Programs	Other	Use at GCSE	
Music ace Sibelius Cubase SX3	Microphones Hard disk recorder	Yes	

Auralia Wavelab 5 Reason Audacity Halion 2 Logic	Monitors Fully equipped digital recording studio and isolation booth		

Willingness/motivation:

Site	Department	Students
Yes – Head of faculty (Performing arts)	Yes – Head of department	Yes – Y10 GCSE class

Students:

Student types		Approaches to composing	
FIMT	Y	Evidence of different strategies	Y
IMT	Y	Evidence of different approaches	Y
NOMT	Y	Evidence of different CBTs	Y
ICT	Y	Evidence of different CMEs	Y

Evidence of development:

Student	Department	School
Significant change in student compositions from Y10 – Y11	Ongoing program of development Development plan Pending update of ICT resources (Aug 08)	Yes - see notes

Distance from home:

Distance	Travel time
18 miles	40 mins

Notes:

1. From ofsted:
is a comprehensive school for boys and girls aged 13-18 years. With 807 students in Key Stages 3 and 4 and 189 students in the sixth form the school is broadly the same size as most secondary schools. The percentage of students eligible for free school meals is below the national average. A few students are from minority ethnic backgrounds and about half of these do not have English as their first language. There are slightly more students with learning difficulties and disabilities than the national average and broadly the same percentage of pupils with statements. The school has **specialist status for the Performing Arts and has achieved Artsmark Gold,** Sportsmark, Investors in People and Healthy Schools.

The school is working in partnership with another local school and college to introduce **major developments in the 14-19 curriculum from September 2008.** In preparation for the proposed reorganisation of education to a two-tier system, the school is also working closely with its pyramid schools to ensure smooth transition over the agreed timescale.

2. From prospectus:
'We aim to provide a learning environment which is safe, stimulating, **creative**,

positive and **challenging**. Our school is based on mutual respect. It is a caring environment in which students and staff make use of high quality learning **opportunities to develop** their maximum academic, moral, social and spiritual potential. We are committed to developing equality of opportunity for all. **We seek to continually improve** and to work not simply harder but more effectively, as individuals and with others.'

As well as the excellent facilities and opportunities we enjoy at #### School, we also have a motivating, respectful and inclusive atmosphere in which to live and work. We are relentlessly optimistic about all that each student can achieve, improving on their previous best. We offer students the opportunity to take on a variety of responsibilities in the school and we listen carefully to the views of students and their families. We recognise that success comes in many different forms and always reward attendance, effort, sporting and **musical ability** as well as academic achievement.

We recognise that our students are individuals and need tailored education in order to achieve the best results. That is why we offer a wide ranging curriculum that gives everyone the chance to use their natural abilities and face new challenges. Each student's personal attitude is the key to their progress. We work hard to support and develop such attitudes.

10.5. APPENDIX 5 SAMPLE OBSERVATION SHEET 2

School info:

School	Address	Head	School size	Ages
####	North Essex	Mr ####	1118	11-18

Department info:

Head of music	Dept size	Teachers
Mrs ####	KS3 2 GCSE (Y11 + 12) 1 Music Tech (Y12)	Miss #### (FT) Mr #### (PT) Head Y10

Accommodation:

Teaching rooms	Practice rooms	Technology labs
2 Classrooms	3 Practice rooms Storage area	Recording studio/lab

Extra Curricular:

Ensembles	Number FIMT	Instrumental teachers
Concert Band Choir Y7 Vocal group Samba Band Strings Y7 Keyboards Informal groups	100 (approx)	Strings (2) Percussion Woodwind (2) Keyboard Guitar

Curriculum:

	KS3	GCSE	A-Level	Other
Schemes/POS	N/C POS	Edexcel	Edexcel Music Edexcel Music Tech	
Music timetable	Weekly	2/3 weeks		
Composing timetable	Regular (most weeks)	2/3 lessons		

Classes:

KS3	GCSE	A-level	Other
30	Y10 = 17 Y11 = 29	Music Tech Y12 = 5	

Integration of ICT:

Computers	Peripherals	Networking	Access
4 ibooks 3 PCs 4 New PCs	Computer projector	X	In department
Programs	Other	Use at GCSE	
Sibelius	Microphones	Yes	

Cubase Audacity Guitar Pro	Hard disk recorder Monitors		

Willingness/motivation:

Site	Department	Students
Yes – Head of faculty (Expressive arts)	Yes – Head of department	Yes – Y10 GCSE class

Students:

Student types		Approaches to composing	
FIMT	Y	Evidence of different strategies	Y
IMT	Y	Evidence of different approaches	Y
NOMT	Y	Evidence of different CBTs	Y
ICT	Y	Evidence of different CMEs	Y

Evidence of development:

Student	Department	School
Significant change in student compositions from Y10 – Y11	Ongoing program of development Development plan Pending update of ICT resources (Aug 08)	Recent award (see notes)

Distance from home:

Distance	Travel time
12 miles	20 mins

Notes:

School development award. From paper cuttings in school foyer. Jan 2008. "Top 200 improved schools". 44% - 55% A*-C in maths and computing.

From prospectus:

School is a mixed comprehensive serving 1118 students between the ages of 11-18 centred on the villages of #### and #### on the #### mid-way between #### and ####. The buildings are in a beautiful setting with grounds bounded by mature trees and extending some 25 acres with an interesting and spacious arrangement of both modern and traditional architecture. The school generates an atmosphere of calm order and **creative activity**.

All students enjoy bright, well-equipped and furnished classrooms with a choice of specialist suites, work shops and **purpose built studios that provide up-to-date facilities** across all curriculum areas. **There has been a recent investment in extensive ICT facilities; we now have 300 PCs across the school with immediate access to CD ROMs and the Internet. Most of our classrooms are equipped with digital projectors**. A major building project has recently been completed to convert the Library into a Learning Centre. The school was designated as a Maths and Computing College in 2004. The large grounds house a sports hall, gymnasium and farm unit, surrounded by wide-open fields, courts and lawns. The Sixth Form benefits from the exclusive use of purpose built common rooms and study areas equipped with computers. **Students are expected to gain their highest level of achievement whilst being self-reliant, self-disciplined and keen to learn.** They are challenged to be punctual, courteous and to take pride in their appearance.

Each of the students at #### School is recognised as an individual with individual needs. The curriculum takes into account the needs and abilities of every student, exploiting strengths and **developing potential**. Students with specific learning difficulties also follow individual learning

programmes. We recognise that students need substantial home support to achieve their best. Parents have opportunities to review their child's progress through interim reports, full reports and by attending Parents' Evenings. We encourage and support the vital link between home and school and the staff are always available to discuss students' progress.

Within the framework of the National Curriculum, our curriculum is broadly based and relevant to students' needs and to the demands of society. In addition to the core subjects of Mathematics, Science, English, PE, RE and Citizenship all students up to the age of 16 have the opportunity to pursue courses in Languages, the Arts, Technology and the Humanities. We encourage students to explore links between subjects and to learn how to handle and present facts and ideas **using the latest Information Technology**. **Our GCSE results have shown a steady improvement with 61% of students gaining 5 or more passes at grades A*~C (2006). There were excellent performances in a number of Music,** Geography, History, Food Technology, Media Studies, Art, Drama, English, Maths, Statistics and Double Science where over 60% of students achieved a C Grade or better. The well-established Sixth Form offers a wide range of challenging programmes for the Post- 16 student. Learning is a continuous process. We encourage students to plan their future. AS and A2 results have also improved steadily with this year seeing our best results ever. There was a 95% pass rate at A Level. At AS there was an 84% pass rate. Most of our students have attained places at their chosen universities.

10.6. APPENDIX 6 OCR COMPOSING ASSESSMENT CRITERIA

Recordings

One C60 cassette or CD should be used for each candidate's performances. It may also contain recordings of the candidate's compositions and the Terminal Task. The cassette or CD case must be clearly labelled with Centre name and number, candidate name and number. The cassette itself should also carry some means of identification. There should be a clear written indication (either on the inlay card, or on a separate sheet) of where each of the pieces is located on the cassette or CD. There should be no long gaps between pieces, nor extraneous materials on the cassette or CD.

If preferred, the recorded Terminal Task responses of all the Centre's candidates may be submitted on a separate cassette or CD.

7.3 DIFFERENTIATION AND MARKING OF COURSEWORK

Differentiation in coursework is achieved by outcome, with teachers guiding candidates to undertake tasks that provide opportunities to show what they know, understand and can do, so that they score appropriately when the assessment criteria are applied.

The assessment objectives, which indicate in general terms what candidates should achieve, are common to all.

The award of marks must be directly related to the assessment criteria set out in this specification.

Marking should be positive, rewarding achievement rather than penalising shortcomings. It is the quality of the candidate's work that is to be assessed.

The assessment criteria provide the basis for standards of achievement but weighting, moderation and grade awarding decisions will determine the final grade to be awarded.

7.4 MARKING CRITERIA FOR INTERNALLY ASSESSED WORK

The appropriate set of criteria from those given below are to be applied in the assessment of Performing, Composing and Appraising Coursework and for the Terminal Task:

7.4.1 **Performing** (for Performance 1 in Component 1 Integrated Coursework - Part A; and Further Coursework Performances 2 and 3 - Part B)

7.4.2 **Composing** (for Composition 1 in Component 1 Integrated Coursework - Part A; and Further Coursework Composition 2 - Part B)

7.4.3 **Appraising** (in Component 1 Integrated Coursework - Part A)

7.4.4 **Terminal Task** (Respond and Communicate - Component 2)

7.4.2 Composing

Composition 1: candidates are required to compose to their own brief, which will relate to Area of Study 1 *(Exploiting the Resource)*. Each candidate defines their own brief as part of the appraisal process. The quality of the brief will be assessed against the Appraising Criteria (7.4.3).

Composition 2: candidates are required to compose to a brief based:

either on one of the core styles studied in Area of Study 3 *(Dance Music)*

or on one of the core styles studied in Area of Study 4 *(Traditions and Innovation)*.

Candidates must specify which style forms the basis of their brief.

Two sets of assessment criteria are to be applied in the assessment of each composition: **Common** (10 marks) and the relevant **Area of Study** (5 marks). Once a mark out of 15 is obtained it should be multiplied by 2 to give a mark out of 30.

Common Criteria

1-2 marks	The piece uses a simple creative idea and has a basic structure. It contains some simple musical devices.
3-4 marks	The piece uses some creative ideas which are restated in a natural progression. It uses appropriate musical devices with some success. The composer works within a simple overall structure.
5-6 marks	The piece has creative ideas that are developed using a range of musical devices. The structure of the piece is well-defined and appropriate to the musical materials.
7-8 marks	The piece contains musical ideas that are extended and developed successfully. The relevant musical conventions and structures are explored and used effectively to create a coherent composition.
9-10 marks	The piece contains imaginative development of musical ideas. It shows consistency and individuality in the way it follows and challenges the conventions on which it is based. Musical devices are combined and manipulated successfully within a well-defined structure. The piece has a strong sense of personal style.

Area of Study 1 (to be used when assessing Composition 1)

1 mark	The piece attempts to use the resource and contains one or two simple features appropriate to the instrument. It relates to the genre in a basic way and attempts to fulfil the brief.
2 marks	The piece uses the resource with an awareness of its capability e.g. working within the correct range and simple instrument-specific techniques. The deployment of resources and the way in which the pieces is constructed and presented are appropriate to the genre and relates to the brief.
3 marks	The piece shows understanding of the resource and either applies this effectively in a simple way or attempts to use a range of techniques with limited success. Understanding of the processes and procedures used in the genre is reflected in the deployment of resources and the way in which the piece is composed and presented. The brief is broadly fulfilled.
4 marks	The piece explores the capability of the resources, e.g. its range and instrument- specific techniques, to good effect. It displays good understanding of the processes and procedures used in the genre in the way the resources are used and interrelate, and in the way in which it is composed and presented. The brief is successfully fulfilled.
5 marks	The piece exploits the resource's potential in a way that supports its musical impact. The composer draws on processes and procedures of the genre to create a piece which, through its individuality, makes a distinct contribution to the repertoire. The brief is successfully fulfilled in a musical way.

Area of Study 3 or 4 (to be used when assessing Composition 2)

1 mark	The piece attempts to model itself on the style defined by the brief, using one or two simple features in a basic way.
2 marks	The piece uses some of the simple features of the style defined by the brief, with a little success.
3 marks	The piece broadly meets the brief, either by using simple stylistic features imaginatively or by using some of the more complex stylistic features with limited success
4 marks	The piece is successful in communicating the characteristics of the style defined by the brief, by effectively combining a range of identifiable features.
5 marks	The piece successfully brings a range of features together to create music which conveys a strong sense of personal style. It fully meets the stylistic intentions defined by the brief.

7.4.3 Appraising

Three sets of criteria are to be applied in the assessment of Appraising within the Integrated Coursework:

Performance Appraisal (10 marks)

Composition Brief (10 marks)

Composition Appraisal (10 marks)

The three marks for Performance Appraisal, Composition Brief and Composition Appraisal are to be added together.

Performance Appraisal

1 - 2 marks	The candidate knows how the instrument is used in the piece, can provide some background information about it and can make a simple comparison with the two other pieces studied. The candidates makes a simple judgment about the effectiveness of their performance in conveying the intention of the composer.
3 - 5 marks	The candidate identifies some of the instrument-specific techniques used in the piece, shows understanding of the way the instrument is used and how this is similar to or different from the two other pieces studied. The candidate makes a judgment on the effectiveness of their performance in terms of technical fluency, and its success in conveying the composer's intentions in relation to the genre.
6 - 8 marks	The candidate recognises how the composer has used the capabilities of the instrument in the piece (through range and performing techniques). Characteristic features of the piece are identified and musical comparisons are drawn with the two other pieces studied. The candidate evaluates the success of their performance in communicating the compositional purpose, referring to specific performance details.
9 - 10 marks	The candidate understands the subtleties of how the composer exploits the potential of the instrument in the piece. The piece is evaluated in the context of its purpose and contribution to the tradition, and features that are both similar to and different from the two other pieces studied are identified. The candidate evaluates the success of the performance in the context of the musical and technical demands of the piece, identifying performance detail that conveys the intentions of the composer.

Composition Brief

1 - 2 marks	There is a simple brief which relates to the instrument and pieces studied.
3 - 5 marks	The brief draws on instrument-specific techniques from the pieces studied and defines a compositional purpose.
6 - 8 marks	The brief demonstrates that the candidate considered the features of the pieces studied and has selected appropriate instrument-specific techniques to use to achieve a specific purpose.
9 - 10 marks	The brief sets out a compositional intention which draws on an understanding of the pieces studied and demonstrates that the candidate has made musical decisions about the instrument-specific techniques that will be used.

Composition Appraisal

1 - 2 marks	The candidate makes a simple judgment about how the composition fulfils the brief and relates it to three other pieces in the same genre.
3 - 5 marks	The candidate judges the effectiveness of the composition in fulfilling its brief and recognises how it is similar to, and different from, three other pieces in the same genre.
6 - 8marks	The candidate evaluates the composition identifying details which relate to the brief as well as features which are similar to three other pieces in the same genre, recognising the impact of these similarities and differences on the overall effect.
9 - 10 marks	The candidate defines the characteristics of the piece that contribute to its success, and relates it to three other pieces in the same genre showing an understanding of the contribution it makes to the repertoire.

7.4.4 Terminal Task (Respond and Communicate)

Two sets of criteria are to be applied in assessment of the Terminal Task:

Responding (10 marks)

Communicating (5 marks)

Responding

1 - 2 marks	The response uses the stimulus and employs simple melodic devices.
3 - 4 marks	The response to the stimulus is simple, the melodic devices used are recognisable and a sense of melodic coherence is created.
5 - 6 marks	The response to the stimulus uses melodic techniques creatively, producing an outcome that has musical coherence.
7 - 8 marks	The response to the stimulus is structured and the melody has recognisable musical development using appropriate devices.
9 - 10 marks	The response to the stimulus employs melodic devices effectively to create a stylish and imaginative piece.

Communicating

When making their assessment, teachers are reminded that the standard of performance expected is one that can be met by candidates who have received tuition only in the classroom situation.

1 mark	The piece is communicated in a way that conveys the basic intended effect with limited accuracy.
2 marks	The piece is communicated in a way that conveys the intention with reasonable accuracy of pitch and rhythm.
3 marks	The piece is communicated successfully with accuracy of pitch and a range of other elements.
4 marks	The piece is communicated in a way that shows good command of the medium used to convey the compositional intention, with accuracy and clarity of the intended style.
5 marks	The piece is communicated effectively in a way that shows the stylistic and expressive intentions of the composer.

7.5 MODERATION

All internally assessed work is marked by the teacher and internally standardised by the Centre. Marks are then submitted to OCR by a specified date, after which moderation takes place in accordance with OCR procedures. The purpose of moderation is to ensure that the standard of the award of marks for internally assessed work is the same for each Centre and that each teacher has applied the standards appropriately across the range of candidates within the Centre.

10.7. APPENDIX 7 CD TRACK LIST

Track 1 - Composition 1 (Phase 2-3) Sam
Track 2 - Composition 1 (Phase 2-3) Emily
Track 3 - Composition 2 (Phase 4) Sam
Track 4 – Composition 2 (Phase 4) Emily

10.8. APPENDIX 8 THE PGCE RESEARCH ASSIGNMENT

Section 1c Assignment

The assignment must be based upon teaching undertaken during School Placement 2. Planning for this assignment should begin during the first half of term 2. Early identification of the issue to be investigated and with which students/classes is essential. Your title must indicate 'what you are teaching and to whom' and an 'intention to be critical-analytical'.

Guidance is to be found in Assignment Support on CamTools. See also online Faculty of Education Journal and Readings 28-31 in the Course Music Reader.

Criteria for the assessment of Section I(c)

The categories and criteria used by examiners in their assessments are as follows:

Focus of the study

The determination of a clear topic which satisfies the specification of the assignment in question is expressed in an approved title and may address an appropriate purpose.

Knowledge and understanding

Knowledge and understanding of the field of study, including central concepts, issues and debates relevant to:

- substantive questions relating to the specific topic(s) of the research;
- methodological questions relating to the form(s) of research envisaged;
- the broader context of thought and practice in which the field of study is located

Knowledge and understanding of research and professional literature relevant to the field of study.

Knowledge and understanding of research methodology relevant to the field of study and the research envisaged.

Development of an argument

The development of an overall argument which:

- is logically, analytically, systematically and clearly developed;
- reflects critically upon and justifies methodological decisions, indicating clearly the sort of enquiry which is being undertaken;
- is based on appropriate forms of evidence and on an appropriate selection and deployment of a range of material from relevant literature in the form of allusion, reference and quotations;
- reveals accuracy and judgement in interpretation of material from relevant literature and from other sources;

- recognises and takes account of intellectual and practical complexities is well judged (avoiding premature judgements and unsupported assertions and generalisations)
- is interesting and thought provoking;
- offers clear conclusions which attempt to answer the question(s) addressed and which are based on the argument developed;
- is alert to its implications for future research, educational policy and professional practice, as appropriate.

Critical Engagement and Judgement

The exercise of critical engagement and judgement which goes beyond the mere reporting of existing knowledge and which is revealed in:

- proving and exploring the meaning, adequacy and significance of central concepts, arguments, claims and assumptions found in relevant literature and existing scholarly and professional debate and practice;
- taking into account existing scholarly and professional knowledge, research and experience in the development of an overall argument and project;
- providing a rationale and justification for the selection of issues and sources addressed and for the research methods adopted;
- including a judgement about the character and status of research findings referred to;
- presenting an analytical and appropriately judged reflection on professional experience in relation to the issues under consideration;
- offering an analytical and appropriately judged reflection on research methodology which is brought to bear on the argument and project being developed;
- developing an overall argument in the light of a consideration of lines of criticism and objection to which it might be open;
- offering significantly original, imaginative and innovative insights into, and perspectives upon, the matters addressed and the research attempted;
- indicating the scope, significance and implications of the argument developed

Structure and organisation
Structure and organisation which:

- indicates and justifies at the outset the nature, purpose and character of the work which is being undertaken, offering a programmatic indication of the structure of the essay;
- locates the writer biographically where appropriate;
- offers a clear structure to the essay with sections and sub-headings which are transparent and clearly 'signposted' for the reader;
- is 'driven' throughout by the argument being developed in a sustained way throughout the essay;
- contains a development of the argument throughout the essay

Presentation
Presentation which:

- involves the use of clear and accurate English;
- indicates which 'voice' is being represented at a given time;
- uses a range of presentational devices appropriately (e.g. tables, bullet points etc);

- conforms to stipulated conventions of layout and presentation;
- gives a word count.

Readings

The readings selected include

- official documents relevant to music and arts education
- critical responses to these documents
- well supported argument and discussion about the teaching and learning of music and the arts and related matters

A limited range of reading is stipulated in term 1, while the direction of the term 2 - 3 'in depth study' will determine the focus needed in the readings below. Readings are located in the Faculty of Education Library and the University Library.

Emma's Title

'Oom Pa Pa, Oom Pa Pa, What do they know?': Assessing the compositional processes at work in a year 10 Waltz project. A critital investigation.

10.9. APPENDIX 9 DETAILS OF OPEN CODES

Composing strategies

Type	Name
	Student Articulated Strategies
	Student Observed Strategies

Teacher strategies

Type	Name
	Whole Class Teacher Interventions
	Student Teacher Intervention
	Student Teacher Instruction
	Whole Class Teacher Instructions

Type	Name
	balanced

Compositional devices and features

Type	Name
	16 bars
	3 4 time,
	4 bar sections
	8 bar section
	A-B-A
	acciaccaturas
	Another key
	appoggiaturas
	Auxiliary
	B section
	Balanced phrases
	binary
	binary form
	call and response
	cannon
	chord pattern
	Chromatic notes
	clear strong tune
	clef change
	D minor
	Decorations
	devices
	doing an ending
	even
	fifths
	Flowing
	following teacher's structure
	grace notes
	Graceful
	harmonic pace
	Homophonic
	I I I I V V I I
	I I IV IV I I V V
	interesting rhythms
	key signature
	leaps
	loops
	major
	Melodic devices
	Melodic fragment
	Melodic fragments
	No Um Cha cha
	Oom-cha-cha
	Ornamentation
	outro
	phrases
	rubato
	scale
	Scales
	SFz
	staccato
	Ternary form
	Treble clef
	triad
	recap
	series of waltzes
	slow
	Slow harmonic movements,
	Slow harmonic pace
	Smooth
	start and end on tonic
	Start simple
	Strong beat first
	steps
	tempo
	texture
	two note chords
	Use of Harmony
	Thick~thin texture
	Using ornaments
	using perception of conventions
	vienna
	volume
	waltzes grouped together
	Vary
	turn it down
	bar thing
	basic terminology
	3~4
	Auxiliaries
	chromatic
	descant
	Fast
	G major
	Harmony
	Intro and ending

Type	Name
	intro
	intro and coda
	Introduction and ending
	working on the ending~ (yeh).
	introduction
	Key change
	minor
	section B
	Time signature
	trill
	related key
	repeated
	setting up computer
	techniques
	Bass clef
	chords
	coda
	ending
	Melody
	syncopation
	Triple time
	reusing material
	Rounded Binary form
	root
	Passing notes
	inversions

	3~4 time
	accompaniment
	C Major
	Primary chords
	um cha cha

Changing and editing

Type	Name
	adapting ideas
	Adapting the task
	change instrument
	change program
	change view
	changed it back
	changed the sound
	changed the view
	changing
	Changing bass notes
	Changing the rhythm
	Changing the time signature
	Changing the timing
	collecting ideas together
	copying and editing
	cut
	Delete note
	developing an idea
	Glue sections together
	glued them together
	going to change the sounds
	Joining sections
	make a bit more interesting
	make it right
	make it sound better
	making up as copied out
	micro editing
	move
	shortening
	straightened
	restructuring the piece
	reworking old ideas
	editing

Type	Name
	edit mode
	edit screen
	moving

Time away from composing

Type	Name
	...I just kind of blanked out
	doss moment
	muck about
	gone on wanders
	I wasn't taking it very seriously
	not doing anything
	Off topic
	nothing special.
	Work on own instrument skill

Collaboration

Type	Name
	ask for help
	asking for help
	asking others to listen
	collaborative working to comapre
	comparing with peers
	discussing
	Help me improve it.
	Molly was asking me how
	working with a friend
	seeking others' opinions
	seeking others' evaluations
	seeking confirmation
	sharing with someone
	she showed you the score
	teacher help
	teacher evaluation
	teacher intervention gives rise to new idea
	Teacher spreads student restructuring to class
	Teacher suggests software to record
	Teacher suggests minor
	the person next to me

Awareness or perception

Type	Name
	aware of lack of terminology
	awareness of assessment requirements
	awareness of match between sections
	awareness of pitch
	awareness of structure
	Constraint in Knowledge of software

Looking at the music

Type	Name
	Not everythings neat
	cause it didn't look right
	coloured the tracks
	Enter edit screen
	Enter Arrange screen
	look into it
	looking at notes in edit screen
	looking at the music on the screen
	neaten things up
	viewing a track at a time
	viewing as a score
	viewing the whole
	viewing to check
	seeing the notes written on the page
	watch all of these through looking

Judging

Type	Name
	Checking

Type	Name
	check on it
	checking by a friend
	checking over
	checking two parts against each other
	double check
	error checking
	going over
	going through
	last lessons work
	checking
	Finishing

Type	Name
	reaching an endpoint with material

	Choosing the best
	Compares to other pieces
	comparing
	deciding which was best
	it really didn't work...
	Judging between
	judging success
	judging
	piece evaluation
	Reflecting
	Reflecting on success of equipment
	reflecting on the sound
	see what I've got.
	judging it.
	Judging by listening
	Reflecting on success
	Review

Aural strategies

Type	Name
	aim
	didn't sound very nice
	finding a note
	heard a problem
	importance of sound
	listen back
	listen to
	listen to it
	listen to selected tracks

Type	Name
	listening to separate tracks
	listened through
	listened to it after change
	listening
	listening back
	Listening through.
	listening to a friends work
	listening to all three
	listening to it
	listening to other pieces
	listening to the piece over and over
	Playback
	Playback wrong position
	playing
	playing along
	playing back
	playing back to check
	playing in tracks
	Playing on an acoustic instrument
	playing on the keyboard
	Playing through
	sound more better
	tacit use of listening
	listened to it and imagined what I would have over the top.
	listened
	listening through
	listened to it

Digital technology related

Type	Name
	Recording

Type	Name
	recorded into
	recording a new idea now on a different track
	Recording all at once
	Recording for remembering
	recording it in
	Recording on one track
	Recording on seperate tracks
	Recording tracks
	Recordings in takes
	re-recorded
	recording
	attitude to computer
	Computer constraints
	computer generated print
	computer keyboard
	Constraint of the equipment
	control of computer software
	Cubase
	describes using smv screen
	description of quantising
	didn't have any pedals
	didn't really have the dynamics
	first time you've used Sibelius
	gestures screen
	Inactivity on screen
	Interest in research technology
	Interest in technology
	Keyboard
	keyboard shortcut
	keyboard shortcuts.
	leaving the technology
	logging off
	logging on
	Mapping VST instruments
	MIDI delay
	missing work
	Mouse movement
	muting
	network problem
	Open file
	perception of software affordances
	panning problems
	perception of computer competence
	Play keyboard note (check)
	Points to screen
	poor quality sounds
	Problem with computer
	problem with data processing
	Sibelius is more detailed
	rewind
	rewound
	Set up program
	software flags up composing issue
	step input
	undo
	uses SMV screen to describe
	using the sibelius
	using the software to solve a problem
	work on computer not going well
	Web resources
	Technical help
	using menus
	comfort with the software
	Computer Problem solving
	computer software constraint
	instruction on SMV
	Sibelius
	School network
	Sophisticated use of

	technology
	Using own instrument sound on computer
	Computer problem analysis
	computer problems
	Using the computer keyboard

Spatial location of working

Type	Name
	bringing work into school
	class music lessons
	equipment at home
	home technology
	just sort of put it together
	knowledge from music tech lesson
	learning from music tech lesson
	lesson time
	work away from computer
	pieces that you've done
	outside school
	work outside lessons
	Work at home
	Department set up
	working in another room
	working at home

Related to attainment or exam

Type	Name
	Perceived low attainment

Type	Name
	a lot of things don't work
	basic melody
	I always do it in the wrong place
	boost the marks
	focus on exam marks
	gain more marks
	I could get away with it but...
	i don't know what I'm doing
	I knew there was something. I couldn't work out
	lack of percieved progress
	lack of planning
	long gap between progress
	mistake
	misunderstanding of assessment requirements
	negative perception of ability to complete
	negative technical self-perception
	wanted it to be good
	deadline

Generating

Type	Name
	Adding

Type	Name
	add new instrument
	Add chromatic note
	adding a note
	adding dynamics
	adding dynamics to it
	Adding length
	adding sections
	draw
	duplicated
	elongated
	I just kind of played it
	I recorded it in.
	layering up
	put a dot on
	put it in note by note
	putting notes down
	adding to
	copying and pasting
	accident
	come up with an idea
	ideas from other pieces
	improvising with Cubase NOT sibelius
	making my melody
	match the note in my head
	serendipity
	using ideas from my B piece
	improvising
	Multiple takes
	finding an idea
	Improvising to find a melody

Translation or use of ideas and skills with different media

Type	Name
	copying out
	drums
	Easier on own instrument
	incompatability between tech at home and tech at school
	manuscript paper
	Manuscript paper but not full staff notation
	Work on paper
	working on printout
	write them down
	written notation
	Notes on paper
	Own instrument
	Piano
	printing
	sheet music
	Staff notation
	tab
	Use of instrument
	Talks about instrument
	who does music tech
	using existing knowledge
	musical experience
	data processing
	guitar
	using worksheet
	using previous musical experience
	Practicing
	quantising
	score
	Using own instrument as a resource
	working on paper

Investigation and experiment

Type	Name
	experimentation
	Exploring

Type	Name
	Exploring harmony
	fiddling around with the sounds
	fiddling for an idea
	Figure out how to change panning
	I would make an idea when
	### just muck around
	It was a sort of experiment thing...
	mucked around

Type	Name
	mucking about
	mucking about with my skills
	mucking around
	mucking round
	multiple versions of the piece
	trying things out
	Try out some ideas on your instrument
	trial and error
	tried other methods
	tried to record it and couldn't
	trying to find
	trying to get it to sound better
	trying to make an ending here
	trying to play a melody
	trying to represent it
	testing using the computer
	that was a failed attempt
	fiddling around
	struggling to articulate

Aesthetic or identity related

Type	Name
	æsthetic sensibility.
	build
	build better
	choppy
	didn't suit my piece
	embodiment
	express feelings
	Fluency
	got that flowing
	I found a bit which I didn't like
	like it was in place
	made it all look pretty
	music as a social activity
	river metaphor
	this worked so I kept it
	would be better
	student differs with teachers' opinion
	tension between perception of music and teacher's instructions
	Student jokes
	establishing my role

Pedagogic beliefs

Type	Name
	Task design

Type	Name
	19th century
	ballet
	ballrooms
	lyrical
	musicals
	Orchestral
	orchestras
	ornaments
	opera
	contrasting
	constraint in task
	2 different melodic ideas.
	concentration,
	confidence
	creativity
	Delivering declarative knowledge to class
	discipline,
	enjoyment,
	GCSE groups contain a large number of boys
	Guided reinforcement
	inclusive
	knowledge,
	Link between worksheets and
	planning ahead
	new music technology
	qualification for Year 10 at GCSE level.
	Regular
	sensitivity,
	staff pedagogy
	theory reinforcement
	teamwork.
	general character of the school
	New specifications
	appreciation
	Practical music making
	Reinforcement of declarative knowledge
	Successful department

Working out, calculating, thinking

Type	Name
	counting bars
	I couldn't
	work on it
	'Productive' composing
	Progress
	Working out where they are up to
	working out

Music outside composing

Type	Name
	extra curricular music
	extra-curricular pursuits

Obstacles

Type	Name
	constraint in performance ability
	experiencing an obstacle
	instrumental skill limitations
	keyboard wasn't big enough
	lack of dynamic response
	same sort of patterns
	solving technical problem
	Sorting out the display
	software constraints
	Theory Mistake

	problems articulating Theory problem Problems remembering Teacher constraint
Planning or preparing - structuring time or activity	

Type	Name
	Intentions

Type	Name
	Aiming for aesthetic response Bass guitar I had ideas in my head I had my basic idea and then I just you know really ~~ copied and pasted it in I had no idea I wanted it all to match up I wanted it to sound like intended form intentional reason for data processing reason for teacher intervention reason to quantise explicit intentions imagined what I would have Intentions Splitting into chunks for working

Type	Name
	Bass lines descant treble tenor and bass first seciton going back to do defferred work working on a section working on a section in the middle working on sections Working on sections seperately then gluing working on teh bass line working out a melody working out chords working with sections play the top two without the bass so you're working on the melody part here (d nods) ah right OK Bass line Rhythms Deferred work

Type	Name
	Deferred working ideas that you just put to the side Preparing to record save it save it as you are going along~ save on another track searching through Setting aside splitting sections spur of the moment starting simple

Suggested structuring of composing task
that is my fullpiece.
Technical praparation
wandering
you'd already had that idea
I'd finished all my stuff
I'd finished it by Monday
Revising plans
Starting again
finding my place
planning
Planning ahead
Remembering

10.10. APPENDIX 10 WALLAS' FOUR STAGES

1. Preparation involves acquisition and application of skills and knowledge to some problem or task.
2. Incubation occurs when conscious attention is diverted away from the problem.
3. The third stage involves a moment or moments of illumination. The name here implies that after incubation creative insight flashes into sight.
4. The fourth stage is one of verification. Here the initial insight is subjected to evaluation and criticism.

From The Art of Thought (Wallas, 1926)

10.11. APPENDIX 11 LIST OF DATA NAME ABBREVIATIONS

Abbreviation	Data Type	Notes
PGCEA	PGCE Assignment	PGCE Trainee's Assignment
PGCEL	PGCE Logbook	PGCE Trainee's Logbook
PGCEIF	PGCE Final Interview	PGCE Trainee's Final Interview
FC	Final Composition	
SD	School Data	Including class lists, School accountability data, etc.
TIF	Teacher Final Interview	
FN ###	Fieldnotes ##(Week/Book Number)##	
WS ###	Worksheet ##(Week Number)##	Class Worksheets
VC###	Class Video ##(Week Number)##	Long angle shot
VM###	Video Mid Angle Shot ##(Week Number)##	Audio from Student lapel microphone
SWS###	Sam Worksheet ##(Week Number)##	
SVSR###	Sam Video Stimulated Recall Interview ##(Week Number)##	
SVI###	Sam Verification Interview ##(Week Number)##	
SCV###	Sam Computer Video ##(Week Number)##	Feed from computer VGA card & sound
SI###	Sam Interview ##(Week Number)##	
SIPF	Sam Interview Post Composing	Interview Conducted After Phase 4
EWS	Emily Worksheet ##(Week Number)##	
EVSR###	Emily Video Stimulated Recall Interview ##(Week Number)##	
EVI###	Emily Verification Interview ##(Week Number)##	
ECV###	Emily Computer Video ##(Week Number)##	Feed from computer VGA card & sound
EI###	Emily Interview ##(Week Number)##	
EIPF	Emily Interview Post Composing	Interview Conducted After Phase 4

Notes:

- Times are given in the following format: ##hours##minutes##seconds##
- 'ref' refers to the number of the memo attached to the relevant computer file during analysis