DOCTORAL THESIS

The effects of instrumental tutoring and experimental music on collaborative creativity in 9-10 year old children

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The effects of experimental musical material and instrumental tutoring on collaborative creativity in 9 to 11-year-old children

By

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Abstract

This study explores musical creativity in 9 to 11-year-old children, looking at two factors in particular: the choice of stimuli (derived either from Western classical or 20th century experimental music) and whether or not the children concerned have instrumental tuition.

In relation to the first issue: research has shown that experimental music is virtually non-existent in the school music curriculum in the UK (Landy, 1992; Spencer, 2016). Yet experimental music has historically been viewed as providing an effective means of widening the relevance of participation in classroom music and promoting creativity (Dennis, 1967; Self, 1970; Paynter, 1970; Schafer, 1975). However, the pioneering ideas that were advanced in the 60s and 70s, although seen as progressive at the time, failed to gain a foothold in the mainstream of school music education. This research aims to establish whether, as its proponents suggested, there is in fact a link between the use of experimental music in the classroom and musical creativity.

In relation to the second issue: instrumental teaching in the UK largely bases its pedagogy on traditional teaching practices that, arguably, lack creativity (Gaunt, 2008). At the same time, the impact of instrumental teaching on musical creativity is an unexplored area of research – an area that this study seeks to address. 69 research participants of 9 -11 years old were divided into groups according to whether or not they took instrumental lessons, and they were asked to compose in response to Western classical and experimental musical stimuli. Compositional responses using a variety of percussion instruments were videoed to capture

primary data for analysis. Participants' creative products in the form of compositions were analysed using an adaptation of the Sounds of Intent framework of musical development (Ockelford, 2013). The new 'composing' framework with a particular focus on composition, used an applied musicological methodological approach to extract and analyse specific factors pertaining to four collaborative compositional processes, which were: levels of musical coherence, the use of musical stimuli, the structure and content of the compositions and levels of collaboration.

The results showed a statistically significant difference between the outputs of non-tutored and tutored participants, with non-tutored participants achieving higher scores than tutored across all four areas of compositional process.

Results showed no statistically significant difference between the compositional outputs of children to experimental or traditional musical stimuli, however tutored participants use of stimulus material and levels of collaboration were significantly affected by the type of musical stimuli used, whereas non-tutored participants were not. Results showed that tutored participants scored significantly higher in response to experimental musical stimuli than they did to the classical stimulus. This suggests an interaction effect between levels of being tutored or non-tutored and different types of musical stimuli.

Examination of the musical materials produced by the children suggested that the differences found between tutored and non-tutored scores could be the result of non-tutored participants' higher levels of communication and musical imitation during the group compositional process, and that differences found in tutored participants use of experimental and Western classical stimuli could be a result of aural perceptions to unfamiliar sounds. These results supports the argument that instrumental learning is not a prerequisite of musical creativity in children, and that experimental music may promote musical creativity.

Contents

Figures

Tables

SoI (Composing) Scoring Tables

Excerpts

Diagrams

Lists

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Chapter 1 - Introduction

Introduction

Based on the professional experience that prompted this research, music education in English schools could be described as a complex, at times controversial, sometimes even emotive subject. The vulnerability of class music teaching in all schools in the face of fluctuating funding streams and school improvement pressures has led to a disparate picture across the country. Moreover, where there is tuition, personal experience has shown that it is rooted in Western, classical origins, which could be considered to limit intrinsically the benefits derived potentially from exposure to and participation in, experimental music. This is in the context of some encouraging research and practice from the 1960s and 70s where experimental music was employed to study participation and children's ability to create and compose despite no previous learning or exposure.

The intrinsic inequity of a music education that in most schools requires external funding was as much a motivating factor for this study as was the perceived limitations of teachers imposed through a narrow curriculum on creativity and collaboration. Investigating the parallel aims of any actual and potential effect, therefore, of experimental music on children aged 9–11 in terms of their collaborative creativity on the one hand, and the correlation thereof with musical tuition forms the core of the research presented here.

This thesis places itself within the field of music education – more specifically, applied musicology – whereby musical content and the psychological meaning that can be attributed to it are explored within an educational context, and in terms of musical creativity, through a focus on the process of composing. The term 'applied musicology' as opposed to plain 'musicology' is intrinsic to the originality of this research. Studies using this approach are few and the term was first coined by Ockelford (2012) as a means of using music theory to interrogate music education, music psychology and music therapy research. Ockelford (2012) describes applied musicology as:

'lying midway between the intellectually robust connective tissue of the cognitive neurosciences of music on the one hand, and the rather more amorphous and idiosyncratic, highly processed products of post-modern sociological research on the other…' (Ockelford, 2012: p. 457).

As I wished to examine the content of music from both quantitative and qualitative psychological perspectives, through the intertwining of observation and rigorous theoretical analysis, applied musicology emerged as the most robust approach from which to explore musical interaction and communication. From an epistemological perspective, I decided that applied musicology allowed for the effective simultaneous study of the psychological and tangible outputs of musical creativity, as opposed to being separated by a standpoint of either qualitative or quantitative. I did not consider a traditional 'mixed methods' approach to the study to be sufficient in successfully merging the complexities of musical understanding and creativity that may be potentially demonstrated by participants, given that musical knowledge is acquired and expressed by individuals in a multitude of ways (Ockelford, 2012, Glover, 2000, Gruenhagen, 2017). An applied musicological approach gave me the opportunity to analyse musical products using a solid theoretical framework that provided the foundation for musical analysis, with the addition of a numerical measuring tool to provide a second perspective. The two are intrinsically related through their essentially identifying the same components (such as musical coherence) for analysis, but each presented the analysis in different ways. Thus, using applied musicology denoted the need to decide on the superiority of qualitative or quantitative approaches to analysis in this research context, as the two co-exist within one approach.

This decision also aligned with the aims of the research, which were specifically to explore the differences between the creative products of children who are learning and not learning an instrument and the impact of contrasting musical stimuli upon their compositions. This included not just identifying the musical differences, but through in depth analysis, investigating any connections between participants understanding and demonstration of their musical ideas, and any impact of the collaborative context in which they worked. The aims of the research are formulated into 4 research questions, as detailed:

Research question 1:

Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli and of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to group composing?

Research question 2:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of using experimental or traditional Western classical music as stimuli and of having or not having instrumental lessons, on children's use of stimulus material during group composing?

Research question 3:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons and of using experimental or traditional Western classical music as stimuli on the structure and content of 9– 11-year-old children's compositions, composed in small groups?

Research question 4:

Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons and of using experimental or traditional Western classical music as stimuli on 9-11-year-old children's capacity to compose coherently with others in small groups?

Thus, the concept of applied musicology provides a lens through which to conduct an in-depth investigation of children's musical creativity, an ongoing area of interest within the field of music education. Burnard (2012) calls for placing an increased importance of what constitutes musical creativity in music education due to the rise in availability of digital devices for recording and sharing musical experiences, and claims that the 'problem of what constitutes musical creativity in music education remains unresolved' (Burnard, 2012). This research sets out to create new perspectives on musical creativity through the exploration of creative outputs from children with different levels of explicit musical knowledge. The separation of subject participants based on a specific area of their musical experience (that of instrumental learning) has resulted in new findings that serve to make a contribution to the field of music education. How these findings then challenge the notions and assumptions associated with instrumental learning, music education practices and the development of musical creativity forms the concluding discussion.

This study is organised in six chapters that frame the research. Following Chapter 1, Introduction, Chapter 2, the literature review, sets out to contextualize the methodology presented in Chapter 3. This firstly details the process and results of a pilot study, followed by the modifications that were then implemented to create a more defined and reliable main study design. Chapter 4 presents the quantitative results of the study, whilst chapter 5 presents the qualitative analysis and findings of 12 comparative case studies. Chapter 6, the discussion, details the questions that arise from the research findings and their context within the field, whilst Chapter 7 concludes with a synthesis of the contribution made to music education research, as well as implications for the future.

Chapter 2 - Literature Review

2.1 Introduction

'*What is the material of a composition? It's not just the notes and rests, and it's not just a beautiful idea that originates in the unique mind of a genius. Its ideas derived from experience, from social relations, and what the composer does is to transform these ideas into configurations of sound that evoke a corresponding response in the listener*' (Cardew, 1999).

This literature review considers how classroom music teaching in England has evolved since the 1960s, the work of those involved in this movement, including the introduction of experimental and avant-garde music and the development of creative music practices. In so doing, the review will encompass how composing fits within the current National Curriculum of music in England, the problems faced by teachers in defining suitable methods of compositional pedagogy, the gap between class and instrumental music learning and the constraints of instrumental tuition on musical creativity. It will also give some focus to the different models of musical development in children that have been proposed since the 1980s, and how they present different perspectives on the complex and multi-stranded processes involved in stimulating children's musical responses and achieving progression.

An argument for the value of experimental music in the curriculum emerges, and its possible uses as a musical stimulus for composing. Besides, the potential impact of traditional instrumental tuition on the development of musical creativity is considered. From this emerging argument, four research questions are proposed and subsequently investigated.

2.2 Music teaching in England in the 1960s and 1970s and the use of experimental music as a tool for learning

This section investigates some teachers and music educators who influenced the attitudes to music education in British schools in the 1960s and 1970s even if not all the ideas were implemented subsequently or sustainably. Key teachers and educators investigated in this section of the literature review are Self (1967), Dennis (1970, 1975), Shafer (1975) and Paynter and Aston (1970).

The introduction of experimental music emerged in educational practice approximately 50 years ago when music educators in the UK, Canada and Europe, many working in teacher training colleges, started a concerted drive to promote what was then seen as the 'cutting edge' of music in respective school classrooms, as opposed to using only traditional classical and folk music. The musical avant-garde comprised the styles and techniques of an ambitious, probing group of European composers, such as Messiaen, Ives, Cardew, Stockhausen, Nono and Boulez, to name but a few, who, together with influential American experimentalist John Cage, emerged after the second world war. They were generally known either as 'post-war modernists' or the 'experimentalists' (Schwartz & Childs, 1998). At the same time, there was awareness that music was not a popular classroom subject, particularly among adolescents (Spencer, 2016). Music educators of the time in the UK specifically saw the promotion of 'creative music' based on mid-twentieth-century styles, as a way of reinvigorating classroom music learning, whilst embracing the music 'of our time' (Paynter, 1970).

Self (1967) argued that music studied in the classroom should be the music currently being composed and that teachers should take every chance they could of hearing the music of today, otherwise their lessons could not carry the conviction that comes with an authentic listening experience (Self, 1967). In Self's (1967) book *New Sounds in Class* (1967), simple graphic scores (whereby sounds are indicated through visual symbols as opposed to traditional staff notation) are presented for teachers and pupils to play using pitched and non-pitched percussion in three categories: instruments that produce a short sound, instruments that produce a sound that dies away gradually and instruments that make a sustained sound, to be organised as the teacher sees fit. The flexible notation used allows for instruments to be combined in many different ways and although less exacting for the player, Self (1967) argues is more effective for use in schools whose pupils may have a wide range of musical expertise as no prior knowledge of notation is required to read it.

The use of percussion in these scores stemmed from Self's (1967) belief that the increase in the variety of tone-colours through the use of percussion in much experimental music lends itself to school music learning as the emphasis is on texture and tonal colour rather than melody and rhythm, which require specialist knowledge not necessarily possessed by the majority of pupils (Self, 1967).

Like Self, Dennis (1970) in his book *Experimental Music in Schools*, states that the only way to introduce modern music is to make music in the classroom and argues that this is how other subjects, such as art, are kept alive (Dennis, 1970).

Thus, by listening to and re-creating the music of twentieth-century composers such as Schoenberg, Stravinsky and Ives, wherein dissonance is as acceptable as consonance, opportunities for new, creative possibilities and experiences of sound are created (Dennis, 1970). Therefore, and allowing the coexistence of consonance and dissonance, the related prevalence of freedom or indeterminacy (a composing approach in which some aspects of a musical work are left open to chance or the interpreter's free choice), in the works of composers such as John Cage, was regarded by Dennis (1970) as providing a practical starting point from which ideas can develop stage by stage by experimenting with sound and texture.

The purpose of Dennis's (1970) book was to inspire activities that involved every class member, conceptualised based on seven underlying intentions:

1. That the systems of notation and sound production were simple enough for everyone to participate in, regardless of musical knowledge.
2. That the teacher can move through a method of teaching notation that is largely practical, avoiding the tedium of traditional notation teaching.
3. That pupils learn to listen intently, enhancing their aural perceptions.
4. That pupils are given the opportunity to improvise (with pitch and rhythm) creatively within the structure of an overall pattern and follow visual cues.
5. That pupils are offered a variety of simple methods of composition (such as using tape-recorded sounds, composing for solo and ensemble) where creativity is encouraged above everything else.
6. That through experimenting with sound a fascination for other subjects may develop.

7. That the ear is the only true judge and children can effectively reflect on their work by forming their own opinions through critical listening, without the need for the teacher's perspective. (Dennis, 1970: p.3)

Five years later Dennis (1975) published *Projects in Sound*, a resource of 12 self-contained projects designed to assist non-specialist primary music teachers 'experiment' in their classrooms. These projects demonstrate the development in Dennis's (1970) ideas and were aimed at an integrated approach whereby musical activities develop from a central theme, such as the sea. Although still engaging in an experimental approach, the projects are more structured (with specific examples such as original compositions written for the book's purpose) and consist of 'experimental' activities in listening, experimenting with sounds, experimenting with shapes, playing the project pieces (pre-written pieces by experimental composers), collective music-making and individual and group composing. Dennis (1975: p.7) states that the concept of a 'project' had developed rapidly in many educational spheres but was comparatively new to the music lesson and that teachers had been showing an increasing willingness to try out new ideas, and a growing interest in experimental music. These projects were designed with an emphasis on 'creativity', with children making their experiments and composing alone or in groups. Dennis (1975) also made suggestions for the 'discussion' aspect of the projects advising teachers not to impose too many of their ideas onto pupils when reflecting on what they had heard, played and experienced, and therefore developing an increase in autonomy in the children over their creative products.

Canadian composer and educator Murray Schafer was also influential in opening up the possibilities of experimental musical activity in the classroom. Through his approach to exploring sound, Schafer (1975) like Self (1967) believed that if the achievements of a society were all based in the past tense, and music education focused only on dead composers' masterpieces, it is in serious trouble. Rather, he argued, young people should be making their own music, following whatever inclinations seem to them to be right (Schafer, 1975). Schafer (1975) took the view that in a class programmed for creation as opposed to information assimilation (where the teacher is passing knowledge into the minds of students) there are no teachers at all, only a community of learners. In such a context, the teacher's role becomes that of a facilitator of an environment for creativity through posing a question or setting a problem (Schafer, 1975). Translating this approach into practice, Schafer, (1975), created the 'Music Box' in which teachers were supplied with a box of around 300 items (including instruments, tapes and records, avant-garde music scores, pamphlets and booklets) that could inspire children to explore sound. Teachers found the boxes 'exhausting' to work with but reported that children had a great deal of fun discovering, learning and experimenting and that many composition-based activities were borne out of their experiences (Schafer, 1975). Like Dennis (1975), Schafer asserts that for pupils to truly follow their idea pathways, the teacher has to be circumspect about when and how he or she intervenes and should consider themselves as catalysts for whatever might happen in class, rather than dictating what must happen. The Music Box – described at the time by educationists as an 'unstructured, multi-media teaching tool,' allowed for this (Schafer, 1975).

Other significant work aimed at composing and creativity within the changing identity of music education was that of Paynter and Aston in the UK, who created the *Sound and Silence* projects (Paynter and Aston, 1970). Conceptually aligned to their contemporaries, Paynter and Aston (1970) designed ‘projects’ for teachers to use as a means for teaching composing in the classroom. The projects were aimed at secondary aged children and encouraged pupils’ exploration of environmental sounds, the sounds of their bodies (e.g. breathing), percussion instruments, the creation of soundscapes for dramatic accompaniment and as a response to modern art paintings and sculptures. The work that developed from these projects (1970) challenged the view that the majority of current, ‘new’ music was unsuitable for the school curriculum, because, unlike the established classics it possessed no ‘proven’ values. Paynter (1970) encouraged what he termed the ‘creative experiment’ as a way of discovering the potential of an artistic medium and showed that by using particular experimental strategies of avant-garde composers, music teachers were able to engage the enthusiasm and imagination of all pupils (Paynter, 1970).

Contemporaneously with the concept of the ‘Scratch Orchestra’ (the drawing together of sounds from available sources, founded by experimental composer Cornelius Cardew who is believed to have directly influenced Paynter and Aston’s resource (Harris, 2013: Pp.18), Paynter and Aston’s (1970) projects saw children engaging with sound as an artistic channel within which to create opportunities to experiment with it as a resource for composing.

The *Sound and Silence* projects (Paynter and Aston, 1970), aimed at developing group and individual compositions, progressed in grades of complexity. The first 24 are primarily instrumental and relating to trends in twentieth-century music, dealing with topics such as emotional interpretation of sound and use of different stimuli. Project 1, for example, is called '*What does music say*?' and talks about the 'language' of music through which we can express the things we feel and perceive using Olivier Messiaen's 'Et Expecto Resurrectionem Mortuorum' as an aural stimulus. Project 11 '*Patterns in Nature'*, draws inspiration from a visual starting point (children go and find an object they like) and ideas are 'followed through from something looked at to something heard' (Paynter and Aston, 1970: p. 24 & 87).

Projects 25 through to 36 are concerned with vocal music and the making of melody and harmony. The authors strongly believe that

> 'an exploration of harmony is not something which should be confined to the specialist music course, all children have a latent harmonic instinct that has no bearing on their academic abilities, and which should be developed during the last years of Primary School' (Paynter & Aston, 1970: p.9).

The impact of the *Sound and Silence* projects (Paynter and Aston, 1970) on music education is difficult to ascertain. Pitts (2008) describes Paynter's (1970) approach (through the *Sound and Silence* projects) as 'revolutionary' in that it championed the idea that the process of musical learning was as important as the product, which resulted in bringing school music closer to contemporary art and music for the first time (Pitts, 2008).

Research within English northern primary schools, conducted by Joyce Goodman, used the underlying principles and project material from *Sound and Silence* in order to frame an argument that Paynter and Aston's (1970) projects 'play into the fabrication of sonorous bodies and sonic selves whilst also providing potentialities for the creativity of the subject' (Goodman, 2017: p. 3). Goodman (2017) concluded that the method of 'empirical composition' meaning going directly to our materials – the various instruments or musical ideas – and experimenting with them by improvisation until we have fashioned a piece of music (Paynter & Aston, 1970: p.12) and engaging with sound and silence as a means of expression, opened up a dialogue for the 'wider processes of schooling around teacher control, the attentive child and competencies thought conducive to broaden academic performance' (Goodman, 2017: p.19).

Having considered the conceptually related and aligned approaches of these musical educators during the 1960s and 70s, it can be summarised by stating that much of the work of these composers, teachers and educators focused on 'creative group work and participation' (Colwell and Richardson, 2002: p. 739). Despite the differences between them, these educators, some might call them activists, saw music, and art more widely, as welfare and thus advocated a universal right to art and music and the power they had to challenge convention and to educate.

2.3 The changes in music education

This section looks at the literature that is concerned with the changes in music education that have occurred over the last few decades. These changes have been addressed through a variety of lenses, ranging from systems (or political) changes to pedagogical prompts for change, the changing place for music in the curriculum in English schools and most recent changes.

2.3.1 Systems change

The radical changes to the UK music curriculum since the pioneering work of the composer-teachers in the creativity movement of the 1960s and 1970s (Self, 1967;

Dennis, 1970; Paynter & Aston, 1970; Schafer, 1975) have promoted a wide-ranging debate about the educational and pedagogical principles upon which the school music curriculum is based. Paynter (1982) continued his music education work at the University of York in the UK and later with the schools' council with a focus on children 'using the skills they have acquired as they acquire them' (Paynter, 1982: p. 123). One key effect of placing children's aesthetic self-expression at the centre of music education was not just to promote the activity of creative music-making in and off itself, but also to reject approaches to teaching that primarily involved the transmission of pre-existing knowledge or encouraging children to reproduce pre-defined musical responses (Paynter, 1982). Paynter (1982) believed that music education involved the personal and aesthetic growth of the child, thus going beyond training in music-specific skills such as learning an instrument.

In response to such viewpoints, the reform of public examinations and the establishment of a new music curriculum combining performing, composing and listening in the General Certificate of Secondary Education (GCSE) were introduced as the universal post-14 examination in 1986, shortly before in 1988, the National Curriculum was introduced in all state schools in England, Wales and Northern Ireland. Both the exam content and the wider systemic change of the National Curriculum were designed to prescribe what children should be taught and to ensure (wishfully) that each pupil is given the same standard of education in all subjects according to prescribed standards and learning outcomes.

2.3.2 Pedagogical drivers for change

As the political or systems drivers occurred, a pedagogical change could be discerned as well. Consequently, the curriculum was subjected to significant change based on the growing prevalence of constructivist pedagogies. These are based on the constructivist learning theory – a paradigm whereby experiential learning leads to learners constructing their understanding and knowledge of the world. This approach to learning has remained implicitly within the curriculum and also informed the development of the National Curriculum for music in England (Garnett, 2013). Garnett references a 'fault line' (p. 1), which is summarised as 'the distinction that is made between learning to perform and learning music in a wider sense' (Garnett, 2013: p. 1).

This saw a distinction being made between 'behaviourist' learning (whereby individuals acquire new behaviours simply through environmental conditions as oppose to through experience and understanding) and didactic teaching methods on the one hand, and a curriculum based on constructivist principles in terms of the value of learning music (generally, not specifically through learning an instrument).

A constructivist curriculum defines learning on what students understand, based on exposure to a variety of experiences, rather than on what skills they display (Garnett, 2013). However, Garnett (2013) argues that whilst the curriculum may have evolved in this experiential, constructivist manner, the pedagogy with which it is delivered has not. Rather, understanding that has been articulated in abstract terms are taught not as such but as if they are acquired skills or behaviours. Garnett (2013) concludes that

> the result is not only a behaviourist pedagogy that teaches concepts based on the elements of music as if they were skills, but one that gives students

experiences of music that are constrained by the need to exemplify concepts, rather than presenting a rich, musical experience (p.15).

2.3.3 Music in the National Curriculum

The National Curriculum is subject to relatively frequent reviews and changes. The National Curriculum when it was first introduced in 1988, defined musical learning in the classroom in terms of cognitive development of pupils as opposed to the acquisition of skills and supported a pupil-centred curriculum using active learning, because understanding cannot be passed from the teacher to the pupil; it must be built up individually by each learner on the basis of his or her experience (Glaserfeld, 1995).

In the 2007 revision of the National Curriculum, performing, composing and listening are described as "key processes", in addition to reviewing and evaluating. Pupils were required to learn by listening to and playing examples of music, exploring its characteristics through composition, and evaluating the results (QCA, 2007). This can be identified in Swanwick's *C(L)A(S)P* model of musical knowledge (Swanwick and Taylor, 1982) in which Audiation (listening) is at the core, bounded by Composition and Performance, and supported by Literature of and about music along with elements of Skill acquisition.

At that point, classroom activities combined performing, composing and listening, with increased emphasis on learning through guided discovery and active participation with musical materials. Swanwick (2008) describes this approach (echoing the participatory approaches of the 1960s and 70s) to composing in the classroom as holistic and aural, rather than dissected by notation and analysed into separate 'elements'. The new emphasis was much more exploratory, involving projects often lying outside conventional tonality and metric organisation (Swanwick, 2008). These teaching methods moved away from the traditional factual learning about musical masterpieces and singing choral music, were enthusiastically embraced by some teachers, but resisted by others, who perceived such a practical approach a threat to long-held values in music education (Swanwick, 2008). This structure can be seen in the statements of the National Curriculum in their summarising descriptors, for example, 'pupils should be taught to experiment with, create, select and combine sounds using the interrelated dimensions of music' and 'improvise and compose; and extend and develop musical ideas by drawing on a range of musical structures, styles, genres and traditions' (DofE, 2013:p. ?).

This brief historical account presents an overview of the significant changes that music experienced within the National Curriculum, however, these changes have failed to acknowledge the category of instrumental learning, which although may be considered by some nothing more than skill acquisition, is still a central part of a 'music education' for many children. As the factors of improvising, creating and composing are now an integral part of the National Curriculum for music, these aspects of learning will now be discussed in the context of instrumental tuition.

2.3.4 Recent developments

2011 saw the publication of an independent report (Henley, 2011) into the state of music education in the English school system. The review was prompted by the recognition by the Department for Education (DoE) and the Department for Digital, Culture, Media and Sport that whilst provision in some area was very good, 'some children in England do not currently receive an adequate, let alone good, Music Education' (Henley, 2011: p. 5). The review culminated in the articulation of the National Plan which 'is designed to ensure that patchiness is replaced by consistency' (Henley, 2011: p. 15). Schmidt and Colwell (2017) attest to the quality of the review and the robustness of research and analysis in conducting the review. They do, however, also note that implementation is critical when it comes to national plans or strategies. As far as the implementation of the plan is concerned, they argue that there may not be the consistency or quality of implementation 'to be expected from a National Plan' (Schmidt and Colwell, 2017:p. 66).

One of the key recommendations from the National Plan was the creation of Music Education Hubs (MEHs) who would, as it was envisaged in the plan, be delivery mechanisms, in full alignment to the National Plan. Specifically, the National Plan states:

> In each area across the country, there is a requirement for clear leadership in the delivery of Music Education and a requirement that it is delivered coherently and cohesively. Different organisations in each geographical location come with a different set of skills and leadership. To deliver the very best rounded Music Education to children, these organisations should come together in partnership. Central government funding would be channelled through one lead organisation, which will in the vast majority of cases be a Local Authority Music Service (Henley, 2011: p. 18).

The literature appears divided on the effectiveness of the implementation, dependent on the affiliation and association of authors or commissioned researchers. The Musicians' Union (2015), for example, expressed concern over the challenges of reduced Arts Council for England funding which has led to a worsening of working conditions for music teachers which gives rise to the concern over the sustainability of quality through the MEHs, according to the Musicians' Union (2015). Based on evidence from just under half of MEHs represented in the Musicians' Union's Hub Rep community, the Musicians' Union report (2015) points out that 'the body of evidence the MU has collated stands in stark contrast to the skewed picture that selected data collection by the Arts Council offers' (Musicians' Union, 2015: p.2).

In contrast, Sharp and Rabiasz (2015) find that MEHs increased activity in terms of whole-class ensemble teaching, for example, even when the funding had reduced. The report (Sharp and Rabiasz, 2015) was commissioned by the Arts Council and relied predominantly on Arts Council data. Similarly, Music Mark (2018) evaluated, following a consultation of Music Mark members, the efficacy of MEHs to take the National Plan to its future iteration. It cannot surprise to find that the report concludes that the hub model, embodied by MEHs, is an effective working model for the implementation of the National Plan. Challenges such as Local Authority control over schools diminishing further in the course of wholesale academisation in England and the emergence of all-powerful multi-academy trusts (MATs) who are focused largely on school improvement.

Music education continues to be a focus for the current government. A House of Lords debate in October 2018 (Parliament. House of Lords, 2018) pointed out the tension between music being part of the National Curriculum, yet academies and free schools not being bound by the National Curriculum. Further, the report

(Parliament, House of Lords, 2018) points to funding pressures as a concern for the equitable and high-quality provision of music education.

The existence of the National Plan for music education and partnerships around the MEHs can be described as an encouraging state of affairs for music education in England. However, competing educational priorities and policies, such as the liberalisation of ever-increasing numbers of academies and free schools from the National Curriculum and the focus on improvements in public examinations, for example, are likely to continue to exert pressure on providers of music education in English schools.

2.4 The Lack of Creative Learning in Instrumental Tuition

In 2010 England's then-new Secretary of State for Education, Michael Gove initiated a review of music education that stressed the government's priority that every child should have the opportunity to learn to play an instrument and sing (Henley, 2011). This drew attention to the distinction in music education already present in the UK and other countries, referencing learning an instrument and learning music in a wider sense.

The curriculum for classroom music has developed in response to changes in educational thought defined by Cox (2001) as the difference between a subject-centred model of music education that represented the skills, literacy and values of Western art music and a child-centred model that encompasses experiment, creativity and contemporary developments in music (Cox, 2001) emerged. This fundamentally rejects the values on which instrumental tuition is based, however, which can be defined as characterised by the specific goal of achieving technical mastery on a particular instrument and involving a hierarchy of value predicated on progressive technical competence (exemplified by the graded exams of the Associated Board of the Royal Schools of Music) (Fautley, 2010). In relation to previous discussion of pedagogical changes in music education, and regarding the movement of music education from a 'behaviourist' model of learning to a 'constructivist' model, Fautley (2010) states that learning to play a musical instrument according to the typical Western model of practise and refinement is exemplification on a large scale of behaviourist principles (Fautley 2010: p. 44). Put simply, the principles of instrumental teaching are more akin to the imitation by the student of a defined (and modelled) format that does not require much creative input from the student during the process of acquiring mastery.

This distinction emerging from the literature would suggest that instrumental learning is considered not to have moved forward in the same direction as general music education, with a conceptual chasm appearing between the two. If the premise of creativity is not being emphasised in instrumental teaching which predominantly focuses on acquiring mastery as prescribed by a common measurement, the question of what the effects of experimental musical material and instrumental tutoring are on Collaborative Creativity acquires greater urgency.

Investigating the prevailing model of instrumental teaching, Hallam (1998) has conducted much research into the styles and nature of instrumental teaching and her publication 'Instrumental Teaching: A practical guide to better teaching and learning' cites the need for instrumental teachers to continue to reflect on and develop their practice in order that students do develop skills of interpretation and ownership of their experience as a musician, one could argue their creativity as a musician, (Hallam, 1998). Gaunt (2008) proposes that the gap between instrumental and classroom music learning is down to a long tradition of instrumental and vocal teaching historically leading to convictions that tend to resist challenge and change. Gaunt (2008) argues that these convictions led some teachers to think that one-to-one teaching was predominantly perceived as not being an environment in which to explore musical creativity or to think 'outside the box' (Gaunt, 2008).

To examine how instrumental teaching methodologies impact on musical creativity, two factors of instrumental teaching will be taken into consideration. These are the role of ear playing and improvisation (considered in this context as one) and the development of student autonomy. There is a wealth of research on instrumental teaching, but these factors were chosen as relating directly to the focus of this research.

The importance of the ear and improvisation and the need for pupil autonomy as essential for the development of musical creativity are identified early on in the literature in the context of classroom music practices. Schafer (1970) stresses that 'the whole body is an ear,' (Schafer, 1970: Pg.57), Dennis (1975) refers to 'listening to even the quietest sounds in order to gain awareness of all sounds and respond' (Dennis, 1975: Pg. 5), and Self (1967) cites 'enabling children to improvise can be viewed as contributing to bringing out the individuality of children, (Self, 1967: Pg. 3). In terms of identifying the need for pupil autonomy in music learning Schafer (1975) advises 'the teacher's first task is to plan for his extinction,' (Schafer, 1975: Pg. 5) and Dennis (1970) in his notes to teachers states 'if a piece doesn't sound satisfactory, it is not satisfactory, but let the pupils make up their minds about this, do not force your judgement on them' (Dennis, 1970: Pg. 28).

Current research continues to support the use of creative teaching strategies in general class music teaching as shown in Koutsoupidou's (2008) study of the effects of different teaching styles and the use of improvisation on the development of musical creativity. The results of this experimental study in a primary school where 6-year-old children had weekly music lessons for 6 months, indicated that children who experienced creativity (in the form of improvisation activities) as part of their music lessons scored higher than those who didn't when using Webster's MCTM (Measures of Creative Thinking in Music) tests. The tests showed significantly different levels of musical flexibility, originality and syntax between the experimental group (children who learnt improvisation) and comparison group (children who didn't learn improvisation) (Koutsoupidou, 2008).

Koutsoupidou's focus was to gain a deeper insight into different teaching styles identified within the study as 'didactic / teacher-centred approach' and 'creative child-centred approach' and how these may lead to different learning outcomes. According to the music specialists who visually analysed the video data, the didactic teaching approach promoted precision, control, stylistic development and conformity within children, and the creative approach promoted creativity, originality, decision-making, extensiveness, flexibility, individuality and confidence. It was agreed amongst the interviewees that the creative teaching approach is more appropriate in music teaching since improvisation can satisfy most of the important teaching objectives for music and develop musical creativity (Koutsoupidou, 2008).

Research implies (Koutsoupidou, 2008, Gaunt, 2008, Hallam, 1998) that these factors (ear playing and improvisation and pupil autonomy) are still desirable for the development of musical creativity, but not consistently present, in instrumental teaching. This gap between both music education contexts has failed to close, despite the movements and reforms in music education policy and National Curriculum requirements. Research reveals that instrumental teaching is an isolated experience for both student and teacher with little opportunity for student reflection with peers or teacher communication and feedback with colleagues (West and Rostvall, 2003, Gaunt, 2008 and Cardoso, 2017), that teachers struggle to move away from the printed score and involve improvisation, ear playing and creative teaching strategies in their lessons (West and Rostvall, 2003, Hallam, 2010, Meissner, 2016, Baker and Green, 2013). Moreover, even though instrumental teachers stress the need for students to develop autonomy in their playing, they do not provide opportunities for this to happen in lessons (Rostvall and West, 2003, Gaunt, 2008, Zhukov, 2012 and McPhail, 2013).

Meissner's (2016) investigation of instrumental teacher's strategies for facilitating children's learning of expressive music performance through discussion and the use of expressive devices, such as asking children to imagine painting a picture with sound, revealed that teachers found it hard not to impose their ideas on students and needed a lot of support to engage in these strategies, thus moving away from the printed notation and considering a more interpretative and 'creative' approach to learning (Meissner 2016). Such expressive activities as those carried out by Meissner (2016) show that even now the ideas of the composer-educators of the 1960s and 1970s of expressing emotion and nature's sounds through music-making (see, for example, Dennis, 1975, Storm Piece) are still being utilised as a stimulus for musical creativity, but are not frequently practiced with any notable success by music teachers.

It seems that creativity is still implicit, rather than explicit in current policy documents. The only place the National Plan (Henley, 2011) explicitly references creativity is when referring to Youth Music's vision, which is quoted as: 'Through music-making, any young person, regardless of their background, should have the opportunities to discover their creativity and fulfill their potential' (Henley, 2011: p. 20). Despite stating that there are widespread inconsistencies regarding the evidence of creativity in music education classrooms in English schools, Zeserson et al. (2014) nonetheless reference the fact that in those instances and places where creativity is in evidence it is so with great effect. However, Zeserson et al. (2014) also reference inconsistencies and state that 'it is certainly the best and the worst of times for music education in England' (p. 3). Whilst considering the National Plan a strong and potentially powerful framework against which the music education community could hold itself to account, the document is a call to action to the community to do more of that.

Where the literature is abundant with examples and investigations of creativity in music education (Morin, 2010, Tsubonou, Oie and Tan, 2019, Odena, 2012), the same is not true for creativity in instrumental teaching, as has been explored here. Creativity is implicitly advocated. One exam board, for example, in its new specification for GCSE uses the terms 'foster' and 'inspire' in connection with creativity, (AQA, 2019: p. 5 and 25) before referencing it as a learning outcome in the specification.

As this discussion is concerned with the impact these two factors (ear playing and improvisation and pupil autonomy) may have on musical creativity in the context of instrumental tuition, it is first useful to give definitions of creativity.

2.4.1 Definitions of Creativity

Finding an operational definition of creativity has proved problematic and a wide spectrum of definitions have been offered in an attempt to capture its meaning (Craft, 2001). Swede (1993) proposed that creativity is 'a process that results in some sort of outcome that possesses at least two qualities: it must be unique and it must have value' (Swede, 1993: p. 2). Additionally, creativity has been defined as 'the ability to repackage or combine knowledge in a new way which is of some practical use or adds value,' (Higgins & Morgan, 2000: p. 118), as 'the notion of making connections between previously unrelated ideas' or simply just 'seeing things in new ways' (Higgins & Morgan, 2000: pp. 119, 126). Others have proposed that creativity involves four different parameters consisting of the creative person, the creative process, the creative environment and the creative product (Sternberg, 1988, Taylor, 1988, Fryer, 1996, Webster, 2001, Donelly, 2004, Sternberg and Kaufman, 2010). Craft (2006) and Torrance (1988) argue that nowadays, everybody is capable of being creative, given the right environment, and creativity is placed in the realm of everyday living (Craft, 2006, Torrance, 1988). This view democratises creativity, allowing it to be something all people have the potential to possess and therefore providing a role for education to intervene and develop the creative potential of each person (Reimer, 2003).

2.4.2 Playing by Ear and Improvising within Instrumental teaching contexts.

The value of 'playing by ear' was first recognised in research from the 1940s (Mainwaring, 1941), which proposed various benefits linked to ear playing for instrumental performers and students. These included its effect on sight-reading (Luce, 1958, McPherson, 1993/1994, Sperti, 1970), musical memorisation (McPherson, 1993/1994), performance skills (Glenn, 1999, Haston, 2004) and wider aural development (Antonell, 2001, Bennett, 2010, Woody & Lehmann, 2010). Priest (1988, 1989) argued that the prevalence of traditional instrumental teaching methods has meant that playing by ear has been undervalued and that musical reproductive and creative capacities may, indeed, lie at the heart of all instrumental musicianship (Priest, 1988, 1989).

Other research on instrumental teaching has observed that lessons focus on the printed score with very few opportunities for improvising or 'playing by ear' - both of which are considered to be activities that promote the development of creativity, (see Koutsoupidou, 2008, Hargreaves, 2012 and MacDonald, Byrne & Carlton, 2006) and that students are offered no opportunities to form mental representations or 'schema' of the score (Rostvall and West, 2003).

Playing by ear has recently been investigated by Baker and Green (2013) in the EPP (Ear Playing Project) developed from the 'informal learning' strand of Musical Futures (see Green 2008) and engaged instrumental students in the UK in learning from audio recordings without notation. Sixteen matched (according to age and aptitude) pairs of instrumental students (age 10–14 years) were divided into a "control" and an "experimental" group, with pupils taught using traditional instrumental teaching methods (without ear playing) in the former and with ear playing in the latter. The project was designed for classically trained instrumental teachers working in one-to-one or small group settings; particularly those who felt insecure in the realm of ear playing and took place over 10 weeks. The main aims were:

- The introduction of ear playing of which students might be unaware.
- The enhancement of aural skills.
- The development of a skill upon which students might build at home, thus potentially raising learner autonomy and motivation.
- Opening a doorway to self-selected music and informal learning.
- Allowing students to approach a range of music more creatively
- Offering instrumental teachers the opportunity to encounter and reflect on new ways of teaching and learning.

Green and Baker (2013) found that teachers felt that ear playing helped with aural perceptions but not with discerning rhythm or pulse and that pupils found it beneficial for the aural aspects of music exams and in making lessons 'more fun.' In terms of the mean score for every criterion assessed, the ear players surpassed those who continued only with notation over the 7 to 10 weeks of tuition between the pre- and post-test (Green & Baker 2013). Moreover, it was felt by students and teachers that a combination of traditional technical skills (such as sight-reading) combined with ear playing was the preferred way to learn. Ear playing was also felt to put some of the responsibility of learning onto the student, therefore developing student autonomy (Green & Baker 2013).

In conclusion, the literature suggests that playing by ear and improvising are linked to musical creativity and that the absence of this type of activity is linked to a lack of creativity in the context of instrumental and classroom music learning. It is an area of research that warrants further investigation due to the limited literature available and the evident polarity between these two educational contexts.

2.4.3 Student Autonomy within Instrumental teaching contexts

Research denotes the idea of student autonomy in musical learning as linked to increased musical creativity. Fautley (2016) describes the two within instrumental teaching as beneficial to both student and teacher when he states

> What I and many others have dubbed 'creative projects' offer a new sort of territory for learning, one in which there is much greater scope for pupil autonomy or discovery when handled correctly' (Fautley, 2016).

The relationships between students' autonomy and musical creativity are indirectly addressed by McPhail, (2013), in his investigation into developing student autonomy in the one-to-one music lesson. McPhail (2013) previously suggested that instrumental teachers needed to consider ways to increase student ownership (in terms of learning) as a means of enhancing a broader educational purpose for the one-to-one instrumental lesson (McPhail, 2013). Further, McPhail (2013) argues that involving the student in the process of curriculum construction and the blurring of the distinction between curriculum and pedagogy creates particular challenges for instrumental music teachers who have a considerable body of pre-determined technical and musical knowledge to impart. This they tended to do within the role of '*instructor*' (McPhail, 2013). Employing teaching techniques that encourage informal learning whilst transferring technical and stylistic skills has proven problematic for instrumental teachers (McPhail, 2013, Gaunt, 2008, Meissner, 2016).

McPhail (2013) conducted a one-to-one music lesson in front of colleagues with one of his students and engaged principles of 'student-led' learning - e.g. allowing the student to choose repertoire and 'reflection in action' e.g. asking the student to decide how to begin the lesson followed by open-ended questions, whereby she reflected on her playing and progress. With the question of 'how to develop student autonomy' at the centre of this experiment, McPhail (2013) suggests an argument for the necessary predominance of one-to-one music tuition utilising teacher pedagogy that aims to explicitly develop metacognitive (whereby the student is developing a sense of ownership of the learning process) approaches and strategies rather than teaching in the form of a supervised rehearsal that merely monitors mechanical skill acquisition (McPhail, 2013). The development of musical concepts such as form, shape, expressivity, and particular performance practices, although realised in a sonic medium, carry the potential to take students' thinking and conceptual awareness, learning skills and cognitive development well beyond the specific context of written notation.

From this discussion, it is fair to propose that the development of pupil autonomy and the use of activities involving ear playing and improvisation are beneficial in encouraging musical creativity. Through the successful and frequent incorporation of such activities within classroom and instrumental teaching, accessibility to creative pursuits such as composition may be increased. To evaluate this further, this review will now focus on the issues identified with teaching composing in a classroom context, what might constitute a desirable environment for teaching composing, how instrumental learning may impact on children's approaches to composing activities and the role of collaboration during composing.

2.5 The problems of teaching composing in the classroom

The English National Curriculum for Music states that:

> Music is a universal language that embodies one of the highest forms of creativity. A high-quality music education should engage and inspire pupils to develop a love of music and their talent as musicians, and so increase their self-confidence, creativity and sense of achievement. As pupils progress, they should develop a critical engagement with music, allowing them to compose, and to listen with discrimination to the best in the musical canon (Department of Education, 2013: p. 3).

With the framework of this new music curriculum in place, the development and investigation of methods of teaching composing are going to be investigated in the following section, aiming to identify how what and why composing is fundamental within music education.

Teaching composing is amongst the requirements of a primary music teacher (DfE, 2013: p.1) and the act of 'composition' is one of the three components of British music education (performing, composing and appraising). According to the Department of Education, by the age of seven, children should be able to 'experiment with, create, select and combine sounds using the inter-related dimensions of music.' (DfE, 2013: p.1) By 11, they should be able to 'improvise and compose for a range of purposes using the inter-related dimensions of music and use and understand a range of staff and other musical notations' (DfE, 2013: p. 1). This leads to the question as to what this means and whether it is achievable.

Historically, composition has been recognised as an abandoned area of music education. Sloboda (1985) observed that composition was the least studied and least well understood of all musical processes. Moreover, Sloboda (1985) observed that a greater understanding of the compositional process would aid the development of music teaching practices. Further, compositions' use as a means of developing creativity in students is also historically identified within the literature. Rigelski (1981), for example, comments on the value of composing processes as a means of exploring musical dimensions. More recently, Russell-Bowie (2009) contends that the creativity and problem-solving skills children develop as they make their musical compositions are essential in creating a well-rounded child able to perform confidently in the twenty-first century (Russell-Bowie, 2009). The disparity between music educators' goals of creativity development and actual teaching practices to facilitate this within the classroom have also long been known (Schmidt and Sinor, 1986) which led to the suggestion of a lack of understanding of musical creativity and compositional processes (Schmidt and Sinor, 1986; Sloboda, 1981). This resulted in much research as to how musical skills, including composition, develop in children (Kratus, 1989, Webster, 1987, Swanwick, 1986). These attempts to understand children's composing practices have led to greater insight into the psychological processes used by children when they compose. Whilst this is inherently useful to the development of music education, it does not address the problems with teaching composition that remain.

Today there are still issues with teaching composing in English schools and as long ago as 1992, Paynter noted that in discussions of music pedagogy, teaching composing is often ignored (Paynter, 1992: p.7). Exploring student teachers' aims, Drummond (2001) found that due to their training, they mostly preferred to broaden appreciation, enjoyment and knowledge of music in their classrooms, rather than stimulate creativity through practical music making in activities such as composing (Drummond, 2001).

Further, Younker and Smith (2002) identify a need to augment teachers' understanding of how to teach music composition effectively to students of all backgrounds and in all settings, and advise teachers to base their teaching on an understanding of creativity in composing (Younker and Smith, 1996: p.26; 2002: p.259). Hickey (2003) identifies the significance of promoting creativity in the learning environment, teacher talk in formative assessment and ways of analysing student compositions. The significance of teachers' conceptualisations of composing and musical creativity in determining their approach to teaching has also been investigated, (Byrne and Sheridan, 2001, Younker, 2003, Odena and Welch, 2007, 2009). Hickey and Lipscomb (2006) talk of a 'music teaching culture' in which teachers prefer to provide structure in composition tasks to assure that students create something that sounds good, because they are unsure themselves how to assess and understand children's composing creations (Hickey & Lipscomb, 2006).

Studies considering teacher experiences revealed that low levels of confidence were displayed by the majority of primary non-specialist music teachers and that when asked to rate their effectiveness as music teachers, only 50% of over 300 student teachers felt confident to teach any part of composition, notation or theory (Hallam and Burnard et al., 2009). Other research has found that classroom teachers lack confidence when teaching music because they believe music requires special skills and specific knowledge (Bresler, 1993, Holden and Button, 2006, Stavrou, 2012;) as well as the fact that they encounter problems in interpreting the English National Curriculum guidelines and that training is insufficient (Hallam and Burnard et al., 2009), leading to teachers being unsure how to assess children's compositions (Hickey & Lipscomb, 2006, Kokotsaki and Newton, 2015). In a study of just under 1000 trainee primary teachers, Russell-Bowie (2009) found the common factors of teaching music generally were mostly associated with teachers' lack of musical experience, the low priority given to music in schools, the lack of resources, time to teach music, subject knowledge and inadequate preparation time.

Overall, the literature reveals a general negativity towards teaching music by primary teachers and implies a lack of consensus on how composing should be taught, coupled with a lack of understanding with how it should or could be assessed as an indicator of musical progression leading to an overall avoidance of this area of the music curriculum. The following section thus deals with good practice in teaching composition, which has been identified in the literature.

2.5.1 Successful learning environments for teaching composition

Propositions as to what constitutes a suitable approach for teaching composing are a continuing question for debate. In 1977, Burnett claimed that to compose successfully, pupils need opportunities to take genuinely personal decisions when working, as opposed to re-creating realised forms. Received practice, in contrast, were tasks such as writing a 'version' of a Mozart minuet within a particular key and musical form, as opposed to being given the opportunity for the development of original ideas (Swanwick, 1977). Paynter (1977) and Ross (1999) stressed that by considering music as a craft that needs to be learnt, music teachers tend to adopt one of two approaches to teaching composing. Firstly, an 'instructional' approach is adopted, providing information and knowledge about music, and secondly, a 'resourcing' approach (i.e. using created examples and asking pupils to replicate these). Paynter (2000) referenced composing as needing a new and original approach which, in his view, was to enable children to 'contextualise their ideas and have an overview of the compositional picture' during activities (Paynter, 2000: p. 8). Similarly, Glover (2000) states that class teachers who want to maximise composing development with 8-10-year-olds, need to reverse the thinking that often pervades music teaching.

According to Glover (2000), instead of assuming that music lessons are the starting point in which pupils learn the skills they can apply to composing, the expectation can be that pupils bring with them composing experience on which they can build. Glover (2000) also identified that students differed in their ability to 'think in sound' (p. 34) and therefore exhibited a variety of approaches to composing such as using a pre-existing structure (e.g. a storyline) or contrastingly allowing the musical material to dictate the compositional form. Whilst the latter resulted in more careful consideration of the meaning and relevance of each chosen sound, the former involved more practising of ideas and less consideration of the musical content (Glover, 2000).

These differences could not be categorised or applied to particular groups of children, and instead, Glover relates the extent of students' exploration within a composing task to their perceptions of the range of choice within the task (Glover, 2000). This implies that the nature of a child's psychological and individual response to a composing task will directly affect the creative product that emerges. This can pose as problematic for teachers in terms of understanding and assessing. Given the huge possible range of responses within a classroom setting, it is imperative that teachers take the time to hear compositional work. Similarly, to Self (1970), Glover (2000) points out that teachers should develop what she calls a 'listening-led' (p. 36) approach to children's compositional work that will contribute to their compositional development. This is an example of how styles of pedagogical practice can be observed to affect how composition is conceptualised by children in a classroom setting, and vice versa.

Significant studies on this topic of teaching style and its possible impact on children's musical learning include that of Dogani (2004) who sought to discover the nature of teachers' pedagogy in the primary school classroom by looking at their understanding of the teaching of composing, their approach to lesson design and organisation and the way these are reflected in their practice. In her study of six specialist music teachers' approaches to composing, Dogani (2004) found that exceptional practice occurred when teachers allowed pupils to immerse themselves in the creative process, developing ideas and exploring how to organise those ideas. Teachers in these situations avoided taking an adult-centred and teacher-directed role, which enabled the creative responses as opposed to a more commonly displayed lack of originality in the compositions. The latter would have been seen as restrictive to the creative process.

Through her analysis of interviews with teachers and pupils, Dogani (2010) concluded that a successful framework for teaching composition relied on teachers' familiarity with music so that they draw intuitively from their experiences as creative individuals. This approach, she argues, creates an environment where the teacher is present in the classroom as a 'musician amongst musicians' (Kanellopoulos, 2000: p. 382), as opposed to the director of tasks. Rather, this approach allows the teacher to encourage children to find their answers and take their paths through their immediate involvement with music-making. Potentially more challengingly, this means the teacher allows the children freedom to explore rather than imposing a self-evident formula on the children to reach a result pleasing for the teacher (Dogani, 2010).

These observations lead to questions over what exactly is the most creative environment for composing, and what role a teacher should adopt within the process so that creativity is free-flowing and, more importantly, unrestricted through the presence of teacher-imposed ideas.

The effects of the teachers' input when teaching composition has been explored by Saetre (2011) who found that the structure, meaning and expectation of composing tasks differed depending on what he terms a teacher's 'educational orientation' (p. 29), i.e., their interpretations of curriculum and subject matter as influenced by personal experience and knowledge. Saetre (2011) investigated the educational role and orientation of three primary music teachers concerning student and subject matter perspectives, by analysing categories involved in teaching and learning music composition in school settings.

Saetre (2011) observed teachers' operationalisation of the curriculum during set composing tasks revealing a relationship between the act and discourse of teaching, resulting in different educational practices even with shared curriculum and pupils of the same age (Saetre, 2011). For example, he describes the different discourses used by each teacher and their influence on how composition is experienced by the pupils. This was evident in the different levels of importance given to what he describes as the reason for setting the task thus affecting the balance between creativity, knowledge and artistic expression in composition, 'different theories of learning' and the 'meaning of music' visible in each teachers' practice and through their communication with their pupil. His findings suggest that further research into teachers' educational orientation may contribute towards a greater understanding of the diversity of teaching and learning practice in music education and the relationships between teaching and learning.

Research in the area of music psychology by Hargreaves, Miell and MacDonald, (2002) explores the concept of 'musical identities,' and how the formation of children's perception of themselves as 'musicians' is influenced by the school and teachers and other sociological factors such as home life. The development and construction of a child's individual musical identity may also affect how children respond to music activities during class music learning, including their understanding and approach to creative activities such as composing.

Thus, it is arguable that further research is needed to clarify the most appropriate methods of teaching composition successfully. This is particularly true in the face of recognition that the effective delivery of creative composing tasks is still problematic for primary music practitioners. It is notable from the large body of research available that composing in music education is an area of considerable interest with opportunity for continued investigation, and that the role of creativity in composing in schools remains a fragmented and difficult issue (Burnard & Younker, 2002).

Based on the lack of consensus and the challenges associated with teaching composition, one area of analysis potentially taking forward the discourse in this area is that of models of musical development, which will form the next part of this review.

2.6 Theories of Musical Development

It is evident that the fundamental problems with the teaching, understanding and learning of composing in music education are complex and varied and that there is much research into the development of children's musical cognition, with particular focus on compositional products and improvisation responses, spanning the last 30 years. This has resulted in the emergence of several models of children's musical development that seek to explain this from a psychological point of view. This literature review will now consider the most prominent of these theories, namely Swanwick and Tillman (1986), Serafine (1988) and Gordon (1975), in order to identify the limitations and progression of theoretical approaches towards music development within the field of music education.

2.6.1 Swanwick and Tillman's (1986) spiral of musical development

Composition is considered intrinsic to musical development and a significant example of research into the developmental processes of children in music, specifically through the act of composing, is the work of Swanwick and Tillman

(1986) who developed the ‘Spiral of Musical Development’ (Swanwick and Tillman, 1986). This construct is centred on the notion that musical development occurs in a particular order, which is observable in children of school age. Swanwick and Tillman (1986) carried out a pilot study collecting compositional examples by children aged 3–9 years. When independent judges were able to accurately match compositions with the children’s age through just hearing them, a full study was designed involving the analysis of several hundred compositions created by 48 children over four years.

Built on the premise of ‘mastery’ (the sensory response to sound materials evolving into manipulative control), ‘imitation’ (personal expression moving towards the vernacular, e.g. songs of young children show the first signs of imitation through the acts of musical expression), ‘imaginative play’ (the speculative merging into the idiomatic, e.g. at age 10–11 years there is an emergence of the speculative out of the commonplaces of the vernacular into which new relationships showing musical form become evident) and ‘meta-cognition’ (whereby children show an understanding of their learning processes leading to adaptation of style and genre and more complex musical forms) Swanwick and Tillman (1986) propose a sequential development of musical understanding in relation to age. They emphasise that the sequence is only likely to be possible in an environment with frequent musical encounters and that certain developments are necessary to have settled, for later growth to occur (Swanwick and Tillman, 1986).

Whilst making a significant contribution to the discourse in this field, there are limitations to this theory. Swanwick and Tillman’s (1986) description is based on the characteristics of a collection of musical compositions and incorporates other theoretical ideas, including some from Piaget's theory of child development. The foundation of the four phases, or 'modes' as they are called in the model, is taken from their general observations on age-related changes. What they cite as evidence in support of the model are, in fact, their findings that independent observers can identify the age-appropriateness of children's compositions concerning the different developmental modes. This does not demonstrate the theoretical or conceptual justifiability of the modes, nor the formulae on which they are based.

2.6.2 Serafine's (1988) five-part theoretical model further referenced by Huron (1990) and Morgan (1998)

Serafine (1988) proposed a theory of music cognition through the analysis of children's responses to listening material for signs of musical understanding in an attempt to identify generic cognitive processes that underlie musical thinking. To this end, Serafine (1988) employed a five-part theoretical model: firstly, that musical communication occurs between a person (composer, performer, or listener) and a piece of music. Secondly, a set of core cognitive processes are present in composing, performing and listening so there is a direct correspondence between those events that occur cognitively and the patterns of organisation that are identifiable from the musical source. Thirdly these processes exist in two ways – style-specific and generic. Fourthly, that cognition in music is an active, constructive process so there is a question over which musical properties pre-exist in the pieces themselves, and which musical properties are constructed within the minds of the listener. As Serafine (1998) favours the latter explanation (of the listener constructing musical meaning) she then deduces that 'tones and chords, therefore, cannot in any meaningful way be considered the elements of music', they are simply materials for the composer to manipulate into units of sound to which the listener then attributes their meaning (Serafine, 1998).

To further define Serafine's (1998) theory it is necessary to understand that she chose two cognitive processes from which this concept of understanding develops, firstly temporal processes that involve relationships among musical events in time, and secondly non-temporal processes which deal with the more formal and general properties of a given piece of music. Serafine (1998) tested 168 participants from five years old to adulthood to establish a general profile for the acquisition of core processes and to search for developmental trends in completing tasks successfully. The results of the five, eight and 10-year-olds showed that music is processed in qualitatively different ways, which does not follow Serafine's' (1998) proposal that musical understanding is contained within the notes themselves.

Huron (1990) and Morgan (1998) questioned Serafine's (1998) theory arguing that if children and adults understand the same piece of music in different ways then surely the meaning of music cannot be constrained as within those notes (Morgan, 1998). Rather, according to Huron (1990) and Morgan (1998) musical understanding must, therefore, comprise more than constructive mechanisms within the listener. Serafine (1998) was not expecting that the responses of children and adult participants within her study would differ in this way and had initially proposed that children would have the same perception of temporal events as adults. Despite the qualitatively different modes of cognitive understanding demonstrated by her results, these qualitative differences do not form any substantial part of the proposed theory. Hargreaves (2017) points out that although the theory deals with developmental processes it does not suggest a concrete developmental account of age-related changes in music processing. It can, therefore, be argued that there are notable gaps in this theory and although Serafine (1998) provides an important new perspective on musical development, her ideas forcibly oppose many known factors of music theory and are far removed from several established approaches in music psychology including psychometric testing, studies of musical perception and ideas on musical communication.

2.6.3 Gordon's (1975) concept of audiation

Another proposed age-related theory of musical development is that of Gordon (1975) who sought to explain the syntactical language of music as thought in relation to verbal language, using the term 'audiation'. In so doing he defined it as the ability to hear and give meaning to music when sound is not physically present or may never have been physically present (Gordon, 1975). Gordon (1975) argued that audiation occurs when an individual is listening to, recalling, performing, interpreting, creating, improvising, reading, or writing music, and which can be related to Zoltan Kodaly's methodology of visualising sound through the language of solfege (where a pitch is attributed a name according to its order from which it can then be identified by in any key).

Gordon's (1975) music learning theory, based on his research on musical aptitude and achievement, and supporting his concept of 'audiation', represents useful means for pedagogical practices in music education. However, it cannot be said to provide a solid foundation for a music learning theory as it focuses on the receptive processes of auditory perception and internal schemata of music, as opposed to tangible musical events found within performance, improvisation or musically creative activities such as composing.

In summary, it can be said that Swanwick and Tillman (1986), Serafine (1998) and Gordon's (1975) research, as well as other research into children's musical and artistic development (see Hargreaves & Galton's model of artistic development, 1992; Parson's theory of the development of aesthetic appreciation, 1987) identify that there are cognitive and creative processes at work during musical (and other artistic) activity that require increased exploration in order that music educational practices continue to evolve. As previously discussed, not only does past and recent research in the field of music education reveal the problems of teaching composing and facilitating the most conducive environment in which it can occur, but also that there are difficulties with understanding children's compositional outputs, not just in an educational sense in terms of formally evaluating or assessing children's musical creations, but also psychologically as to what conscious decisions are driving the composition process.

A relatively recent development in this field of research is that of Ockelford (2013) whose construct of 'zygonic' theory describes music as abstract patterns of sound that are intrinsically related to each other through imitation. If music were viewed in this way, this theoretical concept could be arguably a simple yet effective route to comprehending the process of constructing sound or ‘composing,’ making it an important focus of this discussion to which the following section of the review is designated.

2.6.4 Zygonic theory and the Sounds of Intent model of musical development

Ockelford (2013) states that ‘musical structure will be created or cognised when imitation is devised or detected’ (Ockelford, 2013: p. 52). The importance of imitation and repetition can be related to earlier ideas within the literature of studies aimed at discerning children’s compositional processes, such as Kratus (1989) who referenced the difference between composing and composition with the latter defined as something a child could replicate (and thus self-imitate) subsequently.

Ockelford’s (2013) zygonic theory derives from the idea of music as repeating itself but not exactly, i.e. sounds that are related to each other but not identical. This has developed into a new approach to musical analysis, which Ockelford has termed ‘applied musicology’ (Ockelford, 2013), and which underpins the basis of his framework of musical development, the ‘Sounds of Intent’ (SoI) model.

The foundations of zygonic theory, that each sound made occurs through imitation and is therefore not only an influence on the sound that precedes it but also derived from sounds that precede it, enabled Ockelford (2005) and his research team to conceptualise a means of according a level and subsequent meaning to musical events when they occur. This levelling tool gave researchers a concrete means of mapping musical progression and behaviour in children with profound and multiple learning difficulties (PMLD), a neglected area of study in music education. Thus, the SoI model provides a means of understanding musical interaction between people in real-life situations and has been used in this way to understand the musical expressions of neurologically challenged children and young people, and more recently neurotypical children. An example of zygonic theory being used to analyse musical communication between neurotypical children is research by Shibazaki, (2010) who investigated the difference between Japanese and English school children in a cross-cultural study of 9–11 year olds composing in groups in response to images. Shibazaki (2010) explored verbal and musical interactions and children's perceived influence on each other using an algorithm based on zygonic theoretical principles.

Ockelford (2013) proposes that musical meaning resides within the relationships between the notes themselves and that sounds produced can be deemed representative of cognitive processes and in determining the intentionality and influence of musical interactions. The idea of applied musicology as a theoretical approach in explaining social inferences is an important development within musicological practices. In his comparison of SoI to other models of musical development, Hargreaves (2017) describes SoI as having an 'outstanding advantage due to its basis in music theory' (Hargreaves, 2017: p. 29) namely because it is working with the 'substance' of music itself.

In terms of developing an argument for understanding children's compositions through the analysis of the music composed in relation to human interaction as opposed to separating the two, it is necessary to examine this style of analytical approach in a real sense. Current reports on the use of 'Sounds of Intent' offer an insight into this and therefore this particular model will now be discussed in detail.

2.6.4.1. The Sounds of Intent model

The 'Sounds of Intent' research project was set up in 2002 jointly with the Institute of Education, the University of Roehampton and the Royal National Institute of the Blind. The initial aim of 'Sounds of Intent' was to investigate and promote the musical development of children and young people with learning difficulties, and to map the musical development of young people with complex needs. (e.g. Ockelford et al., 2005; Cheng et al., 2009; Ockelford and Matawa, 2009; Welch et al., 2009)

The research team developed a framework of musical development that covers the whole range of ability from profound and multiple learning difficulties (PMLD) to those with autism, with or without exceptional musical abilities (often known as *savants*). It was evident to the SoI researchers from early on that to develop accurate descriptions and shared interpretations of the different forms and levels of musical engagement that they were observing among pupils, that some general terms which could be commonly used to record related, but circumstantially unique, observations, where needed. As a consequence, these three terms have been identified to conceptualise the three different areas of musical engagement in the 'Sounds of Intent' framework:

Reactive – evident by a child '*listening and responding*' to music

Proactive – evident by a child '*causing, creating and controlling*' music.

Interactive – evident by a child '*listening to sounds and making them in the context of participation with others*.' (Ockelford, 2013)

Each area of engagement has six progressive levels within it, resulting in 18 possibilities of categorisation, effectively creating what could be called a topology of musical engagement. These levels range from a child appearing to make no response to sound or music, nor create sounds intentionally, alone or with others (Level 1), to having the skills and knowledge of a culturally aware, technically advanced and expressive performer (Level 6) (Ockelford, 2016). The levels were derived from detailed analysis of numerous videos of children participating in classroom music and designed to take into account the huge range of musical engagement possible within the population of children, ranging from those with severe intellectual impairment to the musically gifted young people on the autistic spectrum. The model is pictured in the figure below:

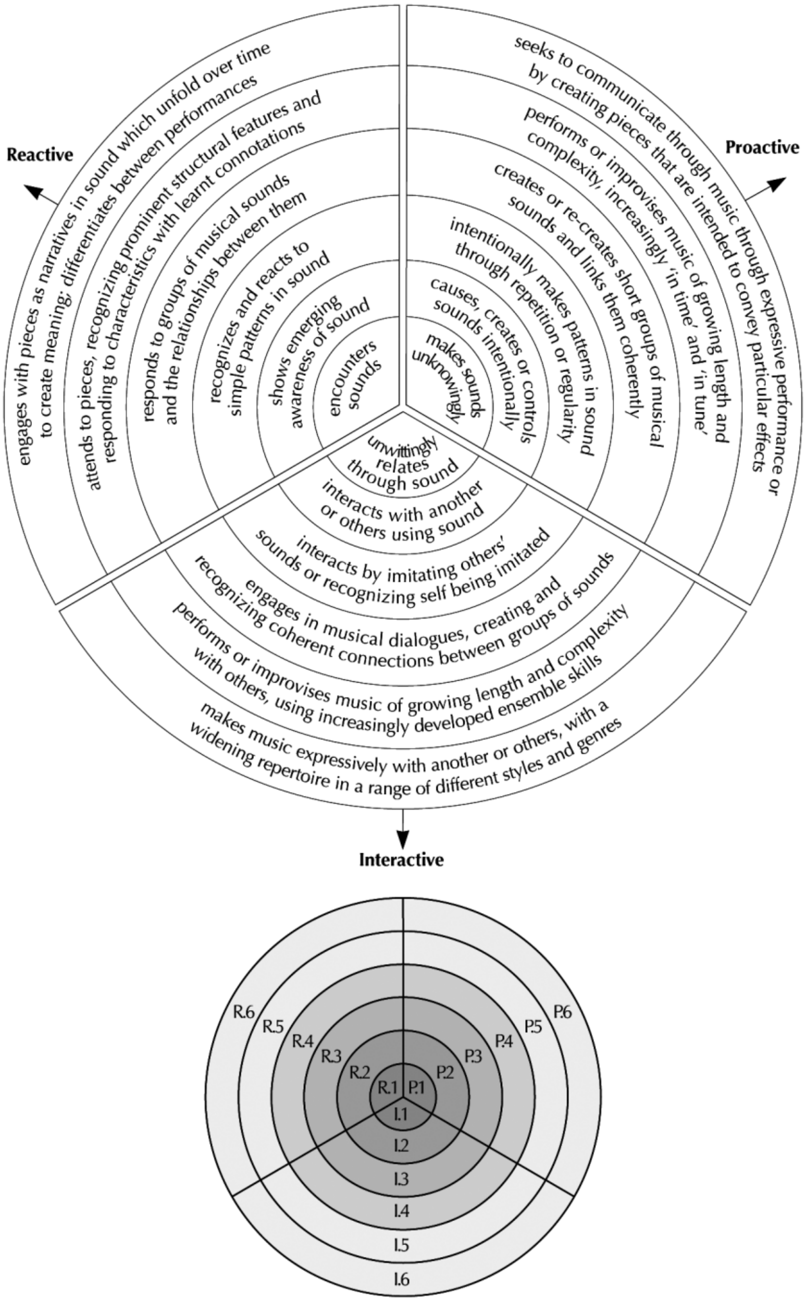


Fig. 1: Sounds of Intent model of musical development (Ockelford, 2013: p. 165)

The larger circle shown in the image indicates the three 'segments' of reactive, proactive and interactive engagement, as delineated above, whilst the smaller circle indicates the progression of levels from the lowest level 1 inside part of the circle to the highest level 6 on the outside of the circle. Within each level, there are four separate elements, each of which represents a form of musical engagement that can be observed within the child's developmental level and domain. Elements are organised vertically underneath the level they are within and progress from A to D, which allows for development to be observed and recorded within a level, see examples for Level 1 and 2 below (fig. 2):

Fig. 2: Levels 1 and 2 Elements of SoI model. Ockelford (2013: p.166)

The same can be observed for Levels 5 and 6, as depicted in figure 3 below:

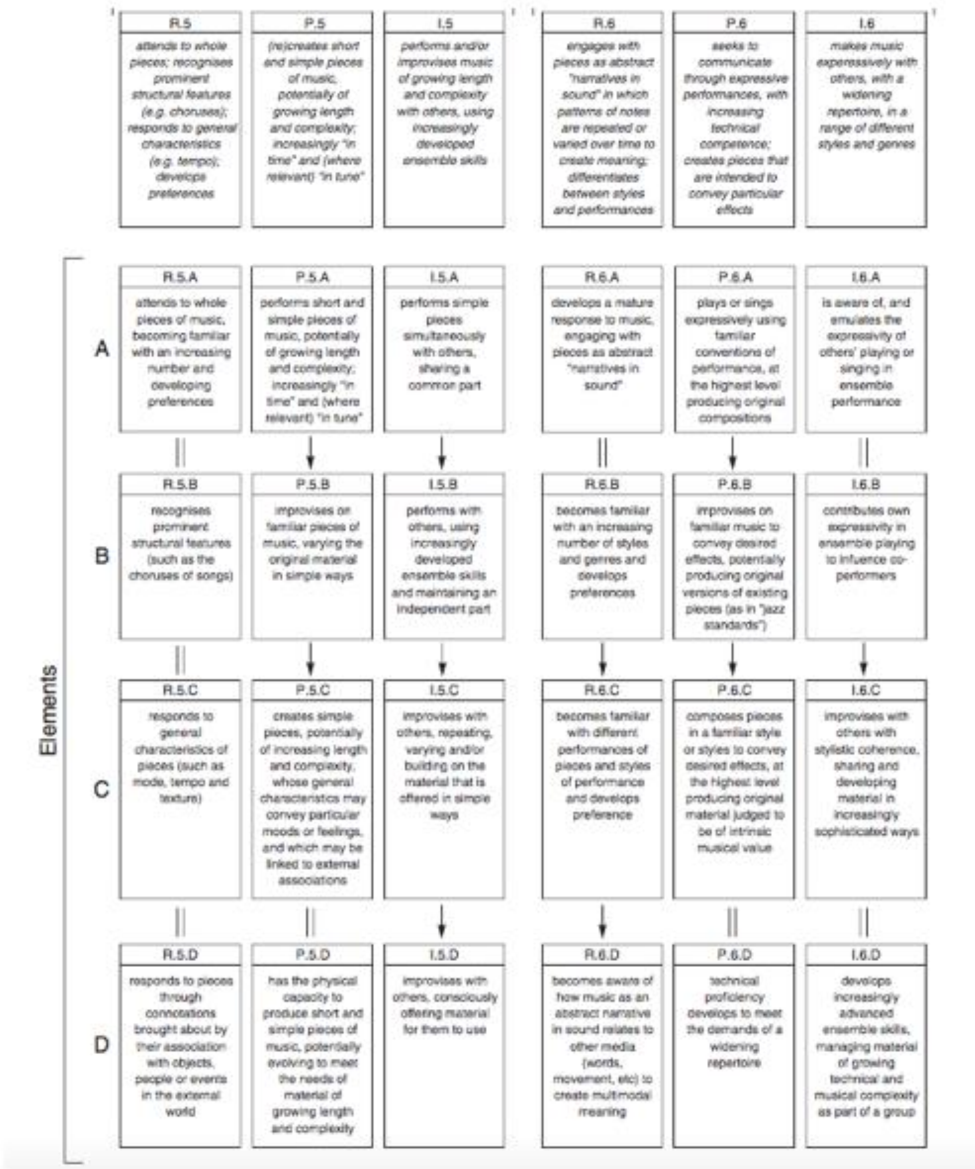


Fig. 3: Levels 5 and 6 Elements of SoI model Ockelford (2013: p.168)

To make the framework memorable across the domains, not least to help non-specialists in its application, form the acronym CIRCLE, as can be seen from the illustration (Fig. 4) below:

Level	Description	Acronym	Core Cognitive Abilities
1	Confusion and Chaos	C	No awareness of sound
2	Awareness and Intentionality	I	An emerging awareness of sound and of the variety that is possible within the domain of sound
3	Relationships, repetition, Regularity	R	A growing awareness of the possibility and significance of relationships between sonic *events*
4	Sounds forming Clusters	C	An evolving perception of *groups* of sounds and of the relationships that may exist between them
5	Deeper structural Links	L	A growing recognition of whole pieces, and the frameworks of pitch and perceived time that lie behind them
6	Mature artistic Expression	E	A developing awareness of the culturally determined "emotional syntax" of performance that articulates the "narrative metaphor" of pieces

Fig. 4: CIRCLE acronym Ockelford (2013: p.148)

The relationships between the levels and domains within this model are complex. Whilst some levels rely on a previous achievement so that there can be progression to the next. For example level R.2.A, which is described as 'shows an awareness of sounds – potentially of increasing variety' needs to occur before level R.2.B denoted as 'makes differentiated responses to the qualities of sounds that may differ' can occur. Other levels may occur randomly without being intrinsically linked through progression. It would, therefore, be possible, for example that a child could achieve level P.3.B which reads 'intentionally make simple patterns through a regular beat' before achieving level P.2.D which is described as 'using sounds to symbolise particular people, places or activities'. It was agreed amongst the research team that these irregularities are unavoidable and typical of the complex way in which music is conceived and practically applied. Significantly, the framework does not rely on a particular progressive pathway, or linearity, which means it would retain accuracy in terms of producing a 'musical profile' for each individual.

The structure and content of the SoI framework were refined based on the findings of two preliminary research studies, one of which was a longitudinal study (Cheng, 2009) who observed six children over six months and recorded her observations within the SoI levels. The second study was an exploratory one at a school for children with learning difficulties and visual impairment, in which Ockelford (2009) led 24 music sessions, each lasting 45 minutes, the content of which was used by the resident music teacher to map and grade musical behavioural observations. She assessed the observations as 'high,' 'medium,' or 'low' and entered the ratings into the SoI online software to create a map of progression for each child. The framework provides the first known means for tracking musical progression with children with learning disabilities and is now in use worldwide, available to teachers as an interactive online resource. The principal findings of the 'Sounds of Intent' project to date are that virtually all children (with the exception of those who are incapable of processing sound or vibration at all) are able to engage with music, whether reactively, proactively or interactively (Ockelford, 2016) and that the vast majority have the potential for musical development if exposed to the right musically stimulating environment.

The SoI framework can be utilised in contexts other than that of children with learning difficulties, which has led to research in related areas. Voyajolu and Ockelford (2016), for example, investigated the applicability of the framework across children from birth to five years. This research, which was based on observations of 58 children in a total of 125 observations, led to the development of a preliminary (adapted) framework, which practitioners and non-specialist could use to design support measures for each child.

Conversely, there could be possible uses for the framework within other areas of arts education with children with special needs, adapted to specific fields or areas of application. Within the context of this discussion, the model could be described as an opportunity for the analysis of children's compositions from a musicianship-driven perspective. Besides, rather than categorising a compositional product as pertaining to a previously understood musical format (such as Rondo form) the SoI framework allows for explanations of composition within the context of a unique occurrence of sound relationships, created as a result of musical intention and influence through human interaction and response.

Having discussed the variety of music development models and considered the different ways in which musical progression in children may be understood, another important question in understanding children's musical responses is that of the influence of instrumental learning on composing, which will be explored in the subsequent section of this review.

2.7 Children's composing and instrumental learning

This literature review has already established that composition is an essential part of the current national curriculum for music (DfE, 2013) and that the benefits of experimental and exploratory composition activities have been acknowledged since the 1960s, in addition to recognising the role that various music development models have paid in explaining the complex process of children's composing. It has also previously been discussed how the gap between classroom music teaching and instrumental teaching continues to widen in terms of pedagogy and the methods employed. In an attempt to link these two aspects of interest, the review will now consider whether or not prior musical knowledge (in the form of instrumental tuition, excluding other social, cultural or home-based musical experiences) affects compositional outcomes.

Kratus (1989) considered the impact of musical knowledge in his study of children composing on keyboard instruments (Kratus 1989). The purpose of the study was to examine the use of exploration, development, repetition, and silence by children of different ages, sexes, and proficiency levels who were engaged in composing a melody on an electronic keyboard. As in the research carried out by Burnard and Younker (2010), the children composed alone. Kratus studied 60 children and to control for prior learning, he excluded those who had current or previous tuition on a keyboard instrument or who had a keyboard at home. Restrictions were placed on the use of available musical materials (only the white keys) and on the starting pitch (middle C) to provide some degree of guidance and to help participants begin the task.

These restrictions are in accordance with Regelski's (1981) guidelines for using creative activities in general music classes, which state that if too much free choice is allowed students can quickly become lost, waste time or lose interest for lack of guidance (Regelski, 1981: p.294). Students were also limited to 10 minutes of composing time. Kratus' (1989) study is focused on the investigation of compositional processes, and also the ability to which participants were able to replicate previous ideas. He categorised compositional processes as follows:

Exploration: The music sounds unlike music played earlier. No specific references to music played earlier can be heard.

Development: The music sounds similar to, yet different from, music played earlier. Clear references to music played earlier can be heard in the melody, the rhythm, or both.

Repetition: The music sounds the same as music played earlier.

Silence: No music is heard because of subject silence, subject statement or question, or researcher's statement.

Kratus' (1989) research sought to address some key aspects relating to the teaching of composing and composition. Kratus (1989) discovered that the ability to develop ideas rather than just explore them is age-related. He found that younger children spent more time producing many different ideas, whom he termed 'process-oriented' (p. 18), whilst older children spent more time on developing preferred ideas, and also that those who were able to replicate their preferred ideas understood the need for repetition in order to solidify an idea and produce a finished piece, whom Kratus (1989) termed 'product-oriented' (p. 16). Kratus (1989) states that these findings present two main questions over how music is approached in the classroom, inasmuch as whether children who are unable to replicate a song learn to do so, and if children who are already able to compose learn to compose in a more sophisticated manner.

The results of this study show that children as young as 7 years old can readily engage in creative musical improvisation and that children as young as 9 years old can compose with meaning by shaping their musical ideas. Kratus (1989) argues that teachers need not wait until their students' understanding of music is highly developed before introducing creative activities. Creativity in the classroom expressed through composing may be an important key to helping students gain an understanding of the syntax of music and the process of music-making. It is possible that an understanding of the processes children use to compose may lead to a pedagogy based on compositional and improvisational activities to supplement current teaching methods based primarily on performance and listening (Kratus, 1989).

The study cited here (Kratus, 1989) was influential in the design of this research, as shall be shown later when describing the methodology employed. Suffice to say at this stage, the conclusions Kratus (1989) drew show a degree of congruence with my initial motivations for the research presented here. Showing that both young children and those with no prior exposure to, or acquisition of musical skills, were able within the remit of his study to compose with meaning, points to pedagogical limitations in the classroom and scope for further research into creativity, specifically concerning composing, in young children.

This is also supported by Glover (2000), who observes that it is not only in connection with instrumental learning that children of this age (10–11 years), bring a strong individual motivation for composing. Rather, some pupils quickly make use of every opportunity offered to follow an independent programme of composing which appears to be self-sufficient and self-directed (Glover, 2000). She describes such pupils as not necessarily seen as 'musical' types since this characterisation is often reserved for those who are known to play instruments. Glover (2000) contends, however, that those pupils for whom composing is compelling despite their lack of experience of performing skills are often likely to be the most imaginative and skilful composers of all since their drive to compose appears to come from their interest in working creatively with musical sound (Glover 2000). Considering the ideas of Self (1967), Dennis (1970), Schafer (1970) and Paynter (1970) argue that 'working creatively with sound' is the primary aim of a music curriculum that seeks to develop musical creativity, however it cannot be ignored that instrumental learning is often occurring alongside classroom music experiences, and from the research previously explored in this review has been seen to be removed from these experiences in terms of teaching styles and opportunities for the development of musical creativity.

Glover (2000) makes the point that for many children an interest in composing will most likely relate to the musical activities they are already involved in and for children aged 7-11 years the most significant of these is instruments they will be learning, other music groups they take part in or the use of home computers and technology. How the class teacher embeds these experiences into the class music lesson ensures progression, which, if taken seriously, must be based firmly in each child's experiences (Glover, 2000). In addition, Glover (2000) emphasises the need for schools to make every effort to acknowledge and draw on children's developing instrumental skills in relation to their composing in order to grow their understanding of how music works in the world around them, and that instrumental skills can easily be overlooked when composing, which is seen simply as confined to a brief and often discrete class activity carried out with school instruments in the music lesson (Glover, 2000).

Similarly, Burnard and Younker (2002) observe that what characterises composing at the individual level might be related to the influence of what instrument the student has played and the extent of formal instrumental training they have experienced (Burnard & Younker, 2002). Burnard and Younker (2002) researched composing pathways and creative thinking when composing, using previously collected data from the UK, Australia and Canada, which provided an enormous amount of diversity in terms of geography, ages, musical tuition and compositional tasks. These data consisted of verbal reports, verbal responses, interviews, observations and the examination of musical products, which are outlined briefly in the following section.

- Students' verbal reports and verbal responses were collected at the beginning of the composing session (interview-talk), while composing (session-talk via think-aloud or unstructured interview techniques) and at the end of composing sessions (individual interview-talk and focus group interview-talk in which children were asked to reflect upon composition strategies by viewing a video-replay of a previous composing session)
- Students' written reports were collected at the beginning, middle and end of all composing sessions.

- Examination of musical products (audiotaped or musical transcriptions of collected performances)

  (Burnard & Younker, 2002)

Possible patterns amongst the data directed the comparative analysis whereby the common focus was to explore the strategies used by students while composing. The re-examination of these data led to the finding of three distinctly different composing pathways. Firstly 'linear' pathways, where minimal conception and vision of possible outcomes and minimal movement between divergent and convergent thinking is demonstrated, resulting in composers imposing minimal constraints on decision-making moments when composing. Secondly, 'recursive' pathways, showing more movement across the four creative thinking stages, which referred to the creative operations taking place over time, adapted from a model by Wallas (1926) are outlined as below:

1. *Preparation:* when individuals think about the overall scope, setting, instrumentation of the piece, and prepares, researches and focuses on planning and resourcing issues to inform musical content.

2. *Incubation:* when individuals begin to generate specific musical ideas and content and consider various possibilities, during which exploration of musical possibilities are found, new ideas, alternatives and options explored through divergent thinking.

3. *Illumination:* when material is evaluated, selected, modified and organised into sound structures and sequenced events. The focus is on selection and convergence of ideas.

4. *Verification:* evaluation of the piece, when notation or recorded play-backs, ‘fixing’ ideas and ‘play-throughs’ verify decisions made.

This is where more interaction between divergent and convergent thinking is demonstrated, resulting in composers imposing a greater number of constraints on their decision-making moments. Thirdly, ‘regulated’ pathways, where a strong conception of the overall ‘whole’ after thinking divergently and where much movement within and across the four creative thinking stages is demonstrated whilst simultaneously making musical decisions about their composition.

As a result, the researchers concluded that the absence of formal instruction in composing did not affect pupils’ ability to think divergently and convergently and that the movement between and across creative thinking stages varied. Moreover, individual students naturally elected a balance of constraints and freedom as creative boundaries that guided and governed compositional strategies, which were firmly rooted in their musical biographies. Burnard and Younker (2002) also deduced that what is unique to musical learning through composing is that students experience creativity differently and that factors other than age and musical training affect how young composers approach composing.

The current research sits alongside this belief in that the need for understanding that although composing may be associated strongly with musical knowledge and skills, there are other driving factors enabling children to compose successfully when given a suitably motivating environment. As Burnard and Younker (2002) state research such as theirs confirms the need for educators to:

- Understand fully the creative process.

- Proceed sensitively, particularly in the earlier stages, of the creative process; Engage students in acts of reflection on their creative process;
- Consider the impact of compositional tasks on students.
- Be equipped to design tasks according to students' needs (Burnard & Younker, 2002: Pg.259).

In summary, it can be argued that the value of pupils as their own 'musical gatekeepers' is intrinsic to allowing students to experience moving between musical divergence and convergence, constraints and freedom, alternative possibilities and have more opportunities for reflecting deeply on their composing pathways.

The studies considered here show that instrumental learning has been identified as intrinsically related to children's approaches to composing, but that teachers require strategies to understand and translate this effectively so that there is a mutually beneficial relationship between the two musical experiences. Glover (2000) and Burnard and Younker (2002) also highlight the value of pupils listening, discussing, analysing and feeding back on their own and others' work, which can be considered a form of assessment.

An additional difference between the learning contexts of instrumental and classroom music learning is that composition is often taught within a group setting as opposed to the one-to-one environment of instrumental tuition. It, therefore, seems pertinent to examine the impact of collaboration on composing in the context of classroom music learning in the following section.

2.8 Composition and Collaboration

The literature in the field of psychology of music has identified that music is an intensely social activity (Hargreaves and North, 1997, MacDonald et al., 2000) and there is an increasing amount of literature that highlights the key impact that variables such as peer groups, listening history, family environment and musical preferences have upon an individual's developing musical tastes and creativity (MacDonald et al., 2000). Two studies (MacDonald et al., 2000; Miell and MacDonald, 2000) highlight how social variables such as friendship can impact upon both the processes and outcomes of pupils' collaborative compositions and will thus be referenced below. Miell and MacDonald (2000) examined the social processes involved in children's collaborative musical compositions through the analysis of verbal and musical communication between 11 to 12-year-old girls and boys. The results suggested that friendship pairs were characterised by different communication patterns in both their music and non-music talk, compared to those of non-friend pairs. Further, teachers' ratings of the final compositions saw those produced by pairs of friends receiving significantly higher scores than those of non-friends. The results indicate how friendship influences the collaborative process in a creative, open-ended task by facilitating a high level of mutual engagement during the interaction and with the outcome of higher quality compositions (Miell & MacDonald, 2000). Similarly, children working with someone nominated as their best friend, produced compositions that were rated as being superior to those of children working with someone who was only an acquaintance. Moreover, the communication, both verbal and musical, between the best friends was characterised as being of a type more conducive to good-quality collaboration (MacDonald et.al 2002).

Musical activities in the classroom are frequently collaborative in nature. This is often most practical in a classroom environment (due to limited resources and space) and it is recognised that engaging children in reflective and collaborative practices embedded in authentic musical experiences that are modelled and guided by the teacher over time can assist in developing musical creativity (Gruenhagen, 2017). Taking a related but slightly different approach, Gruenhagen (2017) investigated the impact of collaborative activities on the development of musical creativity through a self-reflective critique on her practice. In so doing, she focused on developing musical creativity through reflective and collaborative practices in primary music teaching (Gruenhagen, 2017). Music was taught twice weekly to four-year groups with the ages of the pupils ranging from 5 to 11 years old. Reflective and collaborative practices such as small and large group discussion and creating visual and graphic representations of compositions were mixed with the usual performance-based musical experiences of singing, moving, listening, improvising and composing.

The analysis of children's reflections identified three main factors. Firstly, that as pupils reflect on their experiences through writing or conversation, they identified problems and worked to find ways to solve them and grappled with complex problems that consisted of many interconnected layers (Gruenhagen, 2017). Secondly, the students generated their questions. They revealed what they knew and understood along with the challenges they wanted to overcome including what Gruenhagen (2017) describes as students 'piggybacking' off each other's responses by asking or answering questions that later became catalysts for further investigative group work. Finally, student reflections revealed their struggle to understand, articulate, and bring to bear the criteria by which they judged the quality of their efforts, illustrating the standards of quality they set for themselves and therefore engaging in 'reflection in action' (Gruenhagen, 2017).

It can be deduced from the literature that musical creativity, including in the primary classroom, thrives within a collaborative framework particularly if those involved are already in established friendships (Wiggins, 1994, MacDonald and Miell, 2000, 2002, Hargreaves and Joiner, 2000, Faulkner, 2003, Gruenhagen, 2017). Evidence indicates that musical creativity can be developed with children in a classroom environment but this also relies on the presence of a creative teacher to provide a suitable environment that includes opportunities for collaboration, self-reflection and exploration (Burnard and Younker, 2004, Koutsoupidou, 2008, Coulson and Burke, 2012, Gruenhagen, 2017).

Having discussed some of the key trends in and characteristics of, music education over the last 50 years and the impact of experimental music, explored the most desirable settings for the successful teaching of composing, the impact of instrumental tuition and the effects of collaboration on composing, it is now necessary to logically amalgamate the various points so far presented in this study. Thus the final focus is on why experimental music may relate to children's musical creativity.

2.9 The notion that experimental music may be used as a stimulus to free musical creativity in children

What is experimental music? Rockwell is quoted in Nicholls (1998) as describing it as ‘bolder, more individualistic and eccentric with an ‘untrammelled willingness to probe the very limits of music’ (Nicholls, 1998: p. 517). Experimental music became prominent in the mid-20th century, particularly in Europe and North America. John Cage was one of the earliest composers to use the term and one of experimental music's primary innovators, utilising indeterminacy techniques (in which the composer introduces the elements of chance or unpredictability concerning either the composition or its performance). Dennis (1970) defined experimental music as having one significant aspect of ‘colour: the imaginative use of pure sound qualities together with more complex manifestations of overall textures and sound patterning’ (Dennis, 1970: p. 20). Dennis (1970) further argued that the changes in compositional methods have resulted in a shift in the way that ‘tone-colour’ is perceived, replacing the previous harmonic and melodic continuity of traditional music (Dennis, 1970). According to Schwartz and Childs (1998), experimental compositional practice can be defined broadly by exploratory perceptions radically opposed to, and questioning of, institutionalised compositional, performing, and aesthetic conventions in music.

Nicholls (1998) asserts that both experimental and avant-garde music exist at the forefront of contemporary music thought and practice (and therefore in terms of listener and audience experience are likely to disturb rather than reassure, challenge rather than comfort); but are distinguishable in terms of the extent to which they take the Eurocentric art music tradition as a reference point. Thus, very generally, avant-garde music can be viewed as occupying an extreme position within the tradition, while experimental music lies outside it (Nicholls, 1998). If this definition is accepted and experimental music occupies a position outside musical traditions, where does music that is written to test boundaries and conventions sit in the context of music education?

As previously discussed earlier on in this review, there is evidence that experimental music was successfully used in schools in the 1960s and 70s through the work of Paynter (1970), Schafer (1975), Self (1967) and Dennis (1970), which led to thinking that underpinned the radical change of thought on how music education should be conceived within the UK. This has since dissipated. Landy (1991) observes the fact that music educators have written next to nothing on the subject of musical invention and discovery and describes this as a concern (Landy, 1991). Landy (1991) also recognises that music educators do not take responsibility for opening new music up to the very young, for integrating new notation into early instrumental study of instruments and for including more experimental music on concert programs for student performance. If they did, Landy (1991) argues that the three-pronged approach would promote new music into the public forum and succeed its integration into society. Even though his comments are 25 years old it would seem that little has changed. Spencer (2016) describes his experience working as a teacher trainer between 2004–2014 visiting students in schools in England and Wales. During this time he observed 271 music lessons and in only three was there any reference to the content and style of contemporary music or experimental composers.

> *In only three lessons did I witness teachers fulfilling the hopes of Self and Dennis and encourage children to venture outside these limitations to explore sounds in the variety of ways that modernism had opened up in the*

1950s. (Spencer, 2016: p.2)

He refers to the positive ways in which the educators of those times enhanced music education as encouraging teachers and children to venture outside their musical 'comfort zones' (Spencer, 2016: p. 4), creating unprecedented opportunities for children to be musically creative, introducing children to graphic notation and creating opportunities for music to be explored and learnt in a 'lateral' rather than a conventionally linear way (Spencer, 2016: p. 4). He argues that re-visiting some of these ideas could refresh teachers who want children to step outside their listening habits and develop sensitivity to a wide range of sounds and use them creatively (Spencer, 2016).

2.10 Conclusion

In terms of teaching it is discernible that there are difficulties with the delivery of compositional activities in classroom learning as a result of teacher experiences and their understanding of creativity and composition, not least the experience that composing activities can offer valuable opportunities for collaborative working, exploration and incorporation of other musical knowledge than that from instrumental learning. The literature reveals that instrumental learning is lacking in opportunities for creativity, such as improvising, and that it is not consciously related to classroom music either in terms of pupil experiences or curriculum content. In addition to this, models of musical development, aside from Ockelford's (2013) SoI model, seek to unpick the compositional process through analytical approaches that do not converge the human and musical responses, even though composing is recognised as a creative process.

The fact that ‘creativity’ and ‘composing’ were identified 50 years ago as important to music education (Paynter and Aston, 1970, Dennis, 1970, 1975, Schafer, 1967, Self, 1970) leads to questions as to why there is recent evidence to show they are now lacking in schools in England. Moreover, research indicates that whilst experimental music has historically been viewed as providing an effective means of developing musical creativity regardless of pupils’ levels of musical knowledge, it has all but disappeared from modern music teaching practices in England (Landy, 1991, Spencer, 2016). The relationship between musical creativity and experimental music in education today is yet to be scrutinised and warrants rigorous inquiry. It can be argued that a thorough examination of the use of this style of music, i.e. experimental music, as a stimulus for musical creativity, is much overdue to cement its essential and arguably rightful, position within music education.

2.11 Research questions

Consequently, a research project was conceived that utilises experimental music in the tradition of those musicians and musical educators of the 1960s and 70s (Paynter and Aston, 1970, Dennis, 1970, 1975, Schafer, 1967, Self, 1970) to investigate its impact on collaborative creativity on a number of 9 - 11-year-old children today. Moreover, and in the tradition of Kratus (1989), what impact instrumental tuition, skewed towards Western music, may have on collaborative creativity among the same group of participants. The research thus aims to revisit the innovators of the 1960s and 70s, embed their practice in a contemporary context to conclude the impact experimental music could have on creativity and collaboration in music-making, specifically composing, for 9 - 11-year-olds. This impact will be guided through an applied musicological perspective and thus place the musical compositions created at the central focus of its exploratory analysis.

Having presented an argument justifying the value of applied musicology as both a theoretical and psychological tool and highlighted the gap in knowledge for research into the impact of instrumental tuition and experimental music on musical creativity, four research questions were developed from this line of inquiry.

The research questions were formulated in relation to two variables:

1. a stimulus of experimental music or traditional Western classical music
2. having extra-curricular (outside of the class context) instrumental lessons or not having instrumental lessons

These variables were used to structure research questions specifically directed at exploring four areas of children's composing:

1) Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli and of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to group composing?

2) In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of using experimental or traditional Western classical music as stimuli and of having or not having instrumental lessons, on children's use of stimulus material during group composing?

3) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons and of using experimental or traditional Western

classical music as stimuli on the structure and content of 9– 11-year-old children's compositions, composed in small groups?

4) Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons and of using experimental or traditional Western classical music as stimuli on 9-11-year-old children's capacity to compose coherently with others in small groups?

Chapter 3 - Methodology

3.1 Introduction

The literature review suggested an opportunity for new research within the field of music education. This is identified within the literature as the virtually non-existent use of experimental music within primary music teaching (Landy, 1991, 1992; Spencer, 2016) and the minimal research into relationships between children's musical knowledge based on experiences or non-experiences of private instrumental tuition and their approaches to composing activities.

Reasons for this gap in knowledge are evident as the poor level of progression in instrumental teaching, the lack of creativity in instrumental teaching (Gaunt, 2008) and the gap between instrumental tuition and classroom music practices (Hallam, 1998). Also, that the activity of composing is in general avoided by primary (music) teachers (Holden and Button 2006; Glover, 2010) who struggle with how to find suitable strategies to teach this area of the national curriculum effectively and with understanding, leading to a lack of useful assessment and progression in music education for this age group. What is proposed is the need for research into the contribution that experimental music may make to music education and what impact instrumental tuition may or may not have on the development of musical creativity. The line of inquiry that has emerged from this is proposed within the research questions at the end the literature review chapter in relation to the two variables of musical stimuli and having or not having instrumental lessons.

After defining exactly what was to be investigated the types of data that would serve as the most useful and the most appropriate methods of collecting these data would be in answering these questions were considered. The initial response was a pilot study conducted to test a qualitative research design, which was then revised for the main study. This process is presented within this methodology chapter as a logical progression of the development of the main study design.

3.2 The conceptualisation of a suitable methodology for a pilot study to investigate 'The effects of experimental musical material and instrumental tutoring on Collaborative Creativity in 9-11-year-old Children'

The research questions initially directed me towards a qualitative exploratory approach for collecting data to investigate the research title given above. I felt that adopting an interpretive epistemological standpoint would be the most useful in answering research questions focused on observing and recording behavioural responses to musical stimuli (research questions 1 and 2) and the comparison of compositional processes and strategies between classified (Tutored – receiving private instrumental tuition, and Non-Tutored – not receiving private instrumental tuition) groups (research questions 3 and 4) of children.

The rationale for the choice of an interpretive paradigm is its ontological roots in relativism, which changes from one person to another (Guba and Lincoln, 1994). According to Scotland (2012), meaning is constructed through the interaction between consciousness and the world. The criticism often labelled at interpretive research, that it is not generalisable as research conducted from the scientific paradigm standpoint, has been considered. However, the methodology of observation of spontaneously created music through collaborative creative practice nonetheless determined the paradigm.

As the research questions are aimed at exploring ‘impact’ in relation to the two variables given, on the responses of participants, I decided that participants’ perspectives would be useful. Different approaches were considered including various interviewing techniques. To capture this, I used semi-structured interviews. ‘Structured’ interviewing (in which participants answer a set of pre-established questions with a limited range of answers) was considered unsuitable due to the constrictions on response. ‘Unstructured’ interviewing whereby I would be present amongst participants and the interview is more of a conversation, with no prior expectations set by me initially seemed more appropriate, especially as this type of unstructured interviewing is known to work well with qualitative methodologies and alongside participant observation (see Fontana and Frey, 1994), which I would be conducting during the delivery of the study and when watching video data. However, given the age of the participants (9-11 years), I decided this was not conducive to encouraging insightful answers from more introverted personalities, especially given the short time they had spent with me. Instead, I created a set of more flexible semi-structured interview questions in line with semi-structured interviewing techniques for groups as opposed to individuals that would be flexible and allow for the unpredictability that can occur with interviewing children. Semi-structured interviewing is popular in qualitative education research and is felt to be useful as an inductive method, which provides access to the subjective perceptions of participants (Bernard, 1988). Semi-structured interviewing consists of the interviewer setting up a general structure by deciding in advance the areas of interest to be covered and the main questions to be asked. The person being interviewed therefore has a degree of freedom in what to talk about, how much to say, and how to express it. Semi-structured interviewing is a very flexible technique for small-scale research although it is not suitable for studies involving large numbers of people. Similarly, the interviewer can use prompts and supplementary questions to respond to situational differences across some semi-structured interviews on the same topic. As the pilot study only involved 16 participants it was felt to be the most suitable approach for the pilot study.

The rationale for an initial pilot study was to test how effective the basic study design was. One of the advantages of conducting a pilot study is that it can reveal in advance where and how the main research project could fail, such as when proposed methods or instruments are found to be inappropriate or too complicated. De Vaus (1993) stated aptly 'Do not take the risk. Pilot test first.' (p. 54).

The methods chosen (video recording, content analysis and semi-structured interviewing) were driven by the needs of the initial research questions, but as will be explained, did not offer enough scope to create meaningful results from which to draw robust conclusions. The pilot study design was inspired having considered other previous research studies aimed at exploring musical creativity and composition with children, including that of Swanwick and Tilman (1986), who recorded numerous children's compositions and used them to suggest age-related musical development, Kratus (1989), who recorded children's solo compositional ideas on a keyboard under time constraints and from that proposed suggestions for musical compositional development and Burnard and Younker (2010) who investigated children composing in groups. Additionally, the work of Greene (2008) which focused on children freely reproducing music via their strategies inspired me to use an unstructured approach to the composing activity allowing children to move through their pathways of convergent and divergent thinking to reach decisions regarding compositional content. Having considered the work of contemporaries in the field, I conceived a pilot study design in response to the research questions, the methods of which will now be presented.

3.3 The methods and procedures used to conduct the Pilot Study

The outcomes of the pilot study were used to inform the main study and must be considered a significant factor in the re-design. A full analysis of the pilot study can be found in the appendix Part 1, however, the procedures implemented and how and why they affected the final design is presented briefly here. I drew from other examples to create a simple design that occurred in two main phases.

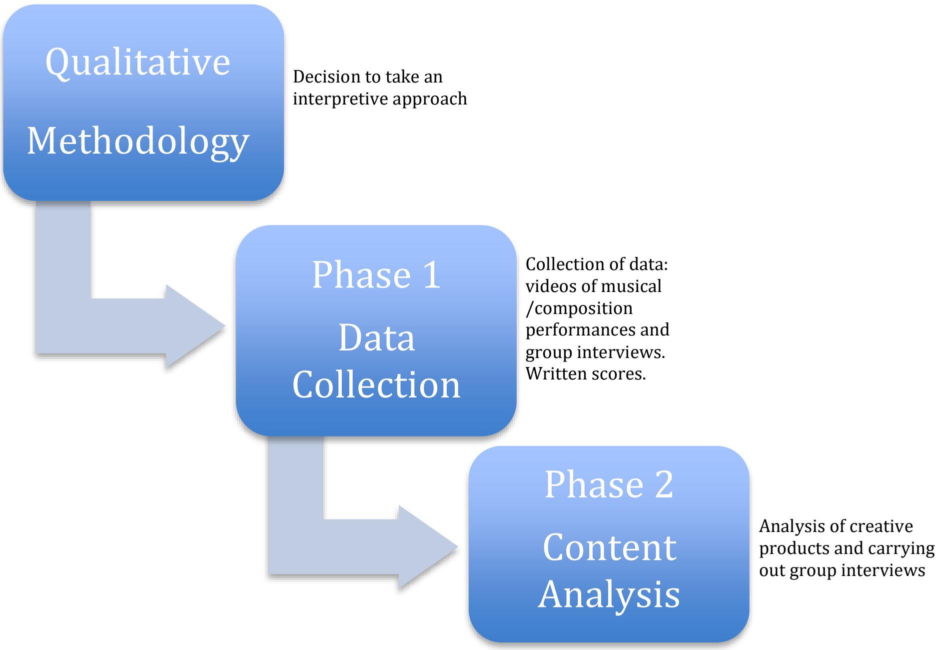


Fig. 5: Methods used in the Pilot Study

<u>3.3.1 Setting</u>

The research took place in a non-selective independent boys' school in Hampshire in the UK. This was chosen as the researcher had personal connections with the school (although she was not employed there in any capacity) and the school was willing to accommodate the research.

Sessions took place in the art room and the researcher carried out all sessions alone, teaching tutored children (those receiving private instrumental tuition) on Tuesday mornings and non-tutored children (those not receiving private instrumental tuition) on Thursday afternoons over 10 weeks. The children for each session were brought to the teaching area, whilst the other half of the class received a 'normal' class music lesson with their music teacher.

3.3.2 Participant Sample

In total, the sample for the pilot study consisted of 16 boys aged 9-11 years. The group was further divided into two equally sized subgroups of eight non-tutored participants (no previous experience of music lessons) and eight Tutored participants (6 months or more of private instrumental tuition on any instrument).

3.3.3 Ethical Considerations

Participant consent forms, (produced in line with the requirements of the University of Roehampton), were completed by participants' parents, the head teacher of the school and the head of music before the commencement of the study. The researcher undertook a DBS (Disclosure and Barring Service check required for anyone working with children) check before carrying out the research. Research with children needs to take into account their choices and right to a positive experience; participants were frequently asked if they were happy to be videoed throughout each session. No participants chose to remove themselves from the study at any point.

3.3.4 Procedures taken to conduct the Pilot Study

The following diagram sets out the Pilot Study procedures for each of the tutored and non-tutored groups. All sessions were recorded using a video camera set up in one corner of the room. Descriptive details for each type of session are provided underneath.

Fig. 6: Pilot study procedures

3.3.4.1 Introductory session

This consisted of a project description and instrument explanation. Participants were given an overall aim and objective of the project (to listen to some music and produce a composition including a written score) and told that their final compositional performances would be videoed.

3.3.4.2 Practical Sessions 8 x 40 minutes

Each group experienced the same conditions for these sessions.

Pupils listened to the stimulus, a brief discussion followed and 'key-word' observations were made. Pupils wrote down their immediate responses to the piece and the stimulus was played a second time. 25 minutes was spent composing in pairs or groups of threes (participants chose their groups and maintained them for the study duration), using the available percussion instruments. The non-tutored group received four sessions of each musical stimuli and the tutored group received four sessions of the experimental music stimulus and three sessions of the classical music stimulus. Participants chose themselves when they felt their music was 'ready' for video performance following each stimulus. The final sessions were used for group interviews in response to the following questions (see appendix for interview transcripts):

1) Did you enjoy composing as a group?

2) How successful did you feel your piece was?

3) Did your piece have a specific meaning?

4) How did you feel about your performance?

5) Was there anything you did not enjoy about the project?

The interviews were conducted at the school by mysef and interview transcripts, whilst interesting, were not of any direct use in answering the research questions and therefore the use of semi-structured interviewing was not repeated in the main study. This was also because the main study used a much larger sample of participants and semi-structured interviews would have become unwieldy and impractical.

3.3.5 Materials Used

The materials used for the project included CD recordings of an example of experimental music (Cage 'Music for Prepared Piano' Vol.2 No. 4) and an example of classical music (Mozart 'Alla Turca') in addition to a video camera. The same collection of percussion instruments was offered at each session: triangle, (metal rod-shaped into a triangle creating a ringing sound when hit with a metal stick), rainmaker (a wooden cylinder containing grains that move slowly from one end to the other), djembe (type of wooden African hand drum with a stretched animal skin top) tambourine, (circular flat 'drum' with bells around circumference, played by tapping or shaking), claves (wooden sticks for tapping) and xylophones (metal keys with pitched sound, organised in low to high pitch of one octave as on a piano, played with 1 or 2 beaters). These instruments were chosen because they are easy enough to play regardless of an individual's musical knowledge.

3.3.6 Data Collection and Analysis

Data were collected in the form of 24 graphic scores – 12 of each for contemporary and classical compositions, 11 hours of video data (including 12 musical performances) and 80 minutes of interview recordings. The creative products of each group were hand scored by the researcher from video footage, and a selection of four were subjected to musical analysis through recording the presence of the following criteria:

- Presence of repeated pitch clusters
- Presence of repeated rhythmic clusters
- Presence of multiple simultaneous sounds
- Presence of contrasting dynamics
- Presence of established tempo
- Use of tempo changes
- Use of solo sounds
- Use of non-conventional sounds
- Alternative use of conventional percussion instruments

Following this, comparisons between the tutored and non-tutored groups were carried out, using the following factors:

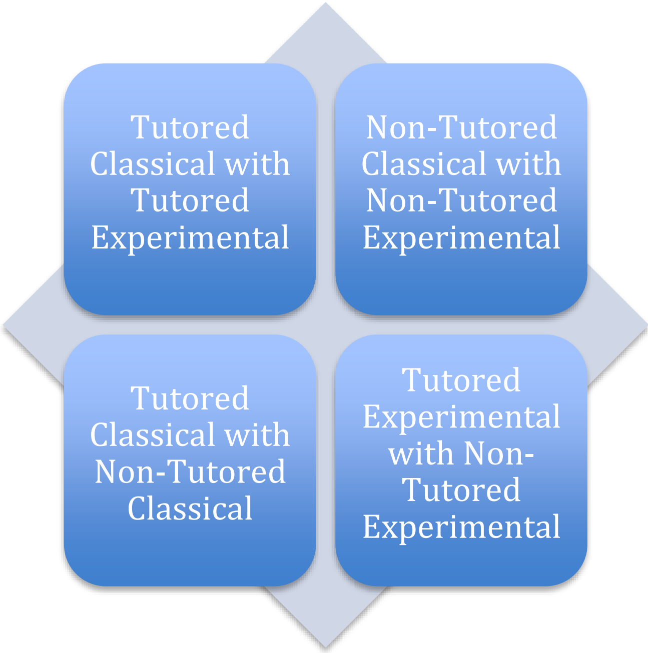


Fig. 7: Comparisons made between tutored and non-tutored groups in the Pilot Study

Content analysis of videos and interviews was conducted, focusing on one selected group of each tutored and non-tutored (see appendix Part 1) participants. This was based on looking at the musical content for each score and deciphering the functionality of that content, in the context in which it was represented. Video data was used to derive meaning from participants' behaviour and musical communication with each other.

3.4 The limitations and successes of the methods used in this Pilot

The pilot study was intended to be an experiment to highlight the potential and the limitations of this type of action research and it exposed a number of practical issues, which are highlighted in the paragraphs below. The need for good sound equipment was essential and due to the location of the sessions, the stimuli had to be played on a small CD player, which impaired the quality of the recording. The type of learning environment had a negative effect on pupils' work, as the acoustics of the room were echoey, (there were no soft furnishings such as carpets or curtains) making it difficult to use loud percussion instruments. The sample size was too small and it did not allow for participants to divide themselves into enough groups and consisted of only boys, therefore, it was not a realistic representation of 'tutored' and 'non-tutored' children in the wider sense. The small sample impacted upon the validity of the children's behaviour; children were very aware of when they were being videoed and therefore 'played' to the camera, affecting the 'realness' of the data. A larger mixed-gender sample would be more representative of the population of 9-11 year-old children learning music in a UK primary educational setting. Moreover, the sessions were too short at 40 minutes; by the time children had settled into 'composing' the lesson was over and many could not finish what they were doing.

An additional factor that weakened the outcomes of the research was the fact that I was placed unavoidably in the role of 'teacher' making it impossible to observe participants properly or take notes. It cannot be excluded that because of this, during the interviews answers from participants may have been 'staged.' The style of group interviews only worked for some participants as those with quieter personalities found it harder to put their points across. The imposed 'teacher' role also left the responsibility of behaviour management to me and I was not appropriately informed of individuals with special needs (of which there were 2 – one with mild Autistic Spectrum Disorder and one with Attention Deficit and Hyperactivity Disorder). This placed me in a precarious position as the only adult in the room.

In terms of video content the question of ‘what to video’ needed to be considered more; discerning whether the composition ‘performances’ should be the only subject analysis, or whether the composing process should also form part of the video data. It also emerged that producing a written score was unnecessary and time consuming for participants and did not provide any useful data to the researcher. Lastly, the need for the school, if possible, to be actively supporting the project would have positively impacted the research process – as it was I came and left at each session and there was a sense of ‘isolation’ to the experience.

The practical issues identified above led to substantial improvements upon the study design. However, they should not detract from some key successes concerning the research objectives. As a consequence, these successes were analysed and repeated in the main study. The three main outcomes are outlined subsequently. Firstly, that the activity of group composing in response to musical stimuli was a suitably challenging and creatively stimulating task for 9-11-year-old children and that the majority of children of this age would be able to enjoy a high level of success and personal achievement, therefore meeting National Curriculum requirements. Secondly, that the activity would be practically manageable in a standard educational setting and did not need specialist equipment or teaching skills and therefore could be delivered by any teacher with clear instructions. Thirdly, that the activity could be achieved within a standard 45-60-minute lesson time, in an average primary school weekly music provision.

3.5 Conclusions

This Pilot Study proved very valuable not only for the outcomes highlighted above but crucially, for the design of the subsequent main study. One key change resulting from the pilot study was the more robust approach to the methodology, such as the use of statistical tests to explore the numerical data generated by a more rigorous scoring system. This will be explored further at the beginning of the subsequent chapter.

The Pilot Study and its evaluation (see appendix Part 1) were essential in conceiving the final study design. The main factors that emerged from the evaluation that contributed to this revision were that the sample was too small to be sufficiently representative of typical school music learning population and that the analytical approach did not answer the research questions in enough depth. This was because it did not draw from a concrete theoretical basis and therefore the observations made were not sufficiently immersed within a framework that placed them plausibly alongside or in context with, other related research.

Moreover, it had become clear that structured quantitative analysis would be essential to reinforce the validity of the results obtained via the qualitative observational, descriptive and case study analysis. As a result, the research design needed to be conceptualised at a deeper academic level to explore the complexities of musical creativity and compositional processes. From this point, I considered different models of measuring musical development, as referred to in the literature review.

Thus two pre-design phases were designed in order to reach a conclusive design that would take into account the needs of the research questions and provide the best environment for the participants to develop musical creativity. This processed is illustrated below:

1. Preliminary Design to carry out Pilot Study
2. Evaluation of Pilot Study to inform Final Design
3. Conceptualisation of Main Study Design

Fig. 8: Design process for the methodologies of the pilot and main studies

3.6 Conceptualising a theoretical framework using Applied Musicology

3.6.1 Introduction

'In planning as well as in assessing research, we must consider its relevance as well as its validity' (Hammersly, 1992, p. 85).

This study and the research questions aimed to investigate the hypothesis that experimental music and instrumental tuition may impact upon musical creativity. This chapter will now present the journey of thought from the pilot study design to the main study design used to conduct research in this field, and which was developed from the limitations of the pilot study already presented. Having discussed relevant literature and recognised the gap in the field of knowledge of children's composing, the absence of experimental music and musical creativity and established research questions to directly explore this, the most appropriate route of investigation for the line of inquiry was considered. As is stated by Hammersly (1992) above it was also imperative that the research had relevance and validity, neither of which had been fully realised in the pilot study.

Methodologically, the use of a quantitative approach to analysis was not initially considered. However, to meet the research question aims of exploring 'differences' through comparisons, descriptions of video data were no longer deemed substantial enough and needed to be supported by further evidence. With this in mind, it was decided to collate frequency counts of musical occurrences from the video data this method could not be performed at a level of any value, as the sample was far too small and the structure of the quantitative method unclear.

The pilot study thus raised the question of using quantitative methods alongside qualitative to strengthen the validity and after considering both, it was clear from the literature that each of these distinct methods investigates and explores different claims to knowledge and that both are designed to address a specific type of research question. While the quantitative method provides more of an objective measure of reality, the qualitative method allows a researcher to explore and better understand the complexity of a phenomenon. In the context of this research, it was initially felt that adopting solely qualitative methods would be the most appropriate angle of investigation because it would be relying on an interpretive approach. However, as the design developed it became clear that the research needed to draw from qualitative and quantitative methodologies to accurately address the research questions.

Thus the adoption of a pragmatic epistemological standpoint (an approach that evaluates theories or beliefs in terms of the success of their practical application), and the use of an established theoretical framework of musical development, steered the research design towards using applied musicology. The sample size selected was large enough to be used for meaningful quantitative analysis, whilst the analysis of a selection of case studies within the theoretical framework adopted would satisfy the original qualitative aims; both were achievable through the use of applied musicology, the concept of which will now be explained.

3.6.2 Applied Musicological Approach - Sounds of Intent framework of musical development and its adaptation

3.6.2.1 Introduction

Fitzpatrick (2016) describes the field of music education as a 'hybrid' field of study (Fitzpatrick, 2016), in which music education researchers attempt to develop studies that honour both the aesthetic qualities of the art form that they study and the complex social and cultural contexts of the world of education at all levels (Reimer, 2008). Thus, the concept of applied musicology, which merges the theoretical and psychological perspectives of musical analysis, was identified as the most relevant and useful methodological approach for a research investigation that required flexibility.

The justification for using an applied musicological approach for this research is dictated by the requirements of the research questions, which seek not only to explain and compare children's compositional processes but also to verify these processes through the quantitative analysis of their musical content. To answer these questions directly, data needed to be collected both numerically and through case-study observation, supported by an analytical approach that drew from a firm theoretical basis. Ockelford's (2013) Sounds of Intent (SoI) framework of musical development, underpinned by the concept of zygonic theory, provided the basis for the development of the theoretical model that was used for analysis. The process undertaken for this and the theory itself will now be presented.

<u>3.6.2.2 Rationale behind using Sounds of Intent and its relation to compositional analysis</u>

As is presented within the literature review, the Sounds of Intent framework of musical development (Ockelford, 2013) was originally developed to map the musical progression of children with learning difficulties. Since its successful use worldwide by therapists and teachers working with individuals with learning difficulties, the model has also been used with neurotypical children. From my point of view, having considered other models and the literature surrounding them, Sounds of Intent emerged as the only model available that dealt with the nature of music itself. The model itself is grounded in the zygonic hypothesis that musical structure is ultimately created and cognised through imitation, which therefore should be observable during musical composition and performance in the form of repeated sounds, qualities of sounds or differences between them (Ockelford, 2013).

The research questions for this study dictated the need for observations of children's creative products to be recorded, measured and categorised in terms of their musical content. The ability to carry this out effectively is provided by the SoI model because of its structure, which focuses on the content of music itself to imply psychological and musical meaning, in an approach Ockelford summarised in the title of his ground-breaking book as 'applied musicology' (Ockelford, 2013). Due to this, it provided the best foundation from which a new composition-focused model could be aimed at investigating the processes of composition and the development of musical creativity in children. The fundamental aim of the model, that children's engagement with music and sound could be categorised and examined more closely, provides congruence with the research questions presented here.

The question at the heart of zygonic theory is, to what extent, in a given musical context, can one element be deemed to derive through imitation from another. In other words, if a sound is assumed to imitate a second, then the first will be heard as exerting a perceived influence on the second through human intent (Ockelford, 2013: p. 38). This underpins the SoI framework and its adaptation for this research, which resulted in a new 'composing'-based version.

The next part of this chapter will describe the structure of the original model and how a new model was developed to analyse children's musical compositions in the context of this research. Within the literature review other models of musical development, for example, Swanwick & Tilman's 'Spiral of Musical Development' (1986) and Gordon's (1975) theory of audiation, have been presented. The argument for using a music-developmental framework that is concerned with the actual sounds produced during a musical performance of original compositional ideas as opposed to the consideration of imposed criteria such as age differences seeks to satisfy the aims of this research. During the creation of the original framework levels, Ockelford (2013) worked with a team of experts to trial different approaches within areas of special needs education and eventually arrived at the currently published framework. I considered this model in detail and then used it, in conjunction with the requirements of the research questions, to determine new categories of musical engagement that would successfully produce the correct types of data for analysis.

3.6.2.3 The domains of the Sounds of Intent Framework and the process of their adaptation for this research

Ockelford (2013) and his research team set about conceptualising musical development through studying and discussing multiple examples of recorded musical occurrences from a range of educational contexts over the course of two years. From this, they settled on the labels 'reactive,' 'proactive' and 'interactive' as fundamental categories for the assessment framework, which meant that children's musical engagement could be broken down and examined in detail and subsequently categorised. These were classed as domains and were defined as follows: 'Reactive' was conceptualised as 'listening and responding (to sound),' 'Proactive' as 'causing, creating and controlling (sound)' and 'Interactive' as 'listening to sounds and making them within the context of others' which emerged as a third independent factor of observation (Ockelford, 2013: p. 128). Within these domains it became clear that there were multiple levels of complexity (i.e. many possibilities of the same response at many different levels), indicating a wide range of development from the smallest musical response to skilled levels of musicianship.

To accommodate this complexity, and allow for more granular analysis, six progressive levels within each domain were developed, resulting in 18 level descriptors across the three domains. Each level descriptor was broken down into four more detailed elements (totalling 72) so that the level descriptors were flexible enough to accommodate the vast possibilities of musical expression and communication that may occur. The connection between the domains, level descriptors and segments both on a surface level and a deeper level is complex, with achievement at higher levels (e.g. levels 5 & 6) dependent on individuals accomplishing those that precede.

To refer to the aspects of the model that relate to the new version presented here, full explanations of the original model will be avoided, and focus given to the areas that I used to create the composing focused version. I began by considering what data the research questions required.

<u>3.6.2.4 Data requirements and rationale for adaptations</u>

Useful data could be gathered via recording levels of musical engagement within the area of composing to establish differences between participants in relation to the variables of contrasting musical stimuli and levels of musical knowledge. Further, the recorded data would provide a means of disseminating the compositional products that participants created. For this, I began by considering the three domains of the SoI model and the descriptions of their six progressive levels.

The levels of the 'reactive' domain from the lowest to the highest level are:

1. Encounters sound
2. Shows an emerging awareness of sound
3. Responds to simple patterns in sound (made through repetition or regularity)
4. Recognises and responds to distinctive groups of musical sounds ('motifs') and the relationships between them (e.g. in call and response)

5. Attends to whole pieces: recognises prominent structural features (e.g. choruses); responds to general characteristics (e.g. tempo); develops preferences.
6. Engages with pieces as abstract 'narratives in sound' in which patterns of notes are repeated or varied over time to create meaning; differentiates between styles and performances.

After viewing these descriptors, the reactive domain was removed from the study design process, as it did not assist in answering the research questions. This is because it involves responding to patterns and distinctive groups of sound and recognition of structural features within whole pieces of music rather than actively 'making' or 'playing' sound. Therefore, it was deemed to lack relevance in the context of composing, which is a central focus of this research. Accordingly, for the remaining two domains 'proactive' and 'interactive', the lowest level descriptors were removed leaving four levels of progression as opposed to six. This was because the lowest levels, (Interactive (I1) '*relates unwittingly through sound*' and (I2) '*interacts with others using sound'* and Proactive (P1) '*makes sounds unknowingly*' and (P2) '*makes or controls sound intentionally*') were considered irrelevant in the context of these participants and for the research objectives to be investigated.

Within these two domains (Proactive and Interactive) I used the original domain level descriptors to create descriptive criteria that responded directly to the research questions. The term 'criteria' was used as opposed to 'level' because the function was not aimed at exploring progression. Rather, the newly created criteria were required to identify and count specific moments of musical engagement. To explain this sufficiently the researcher will first present the original Sounds of Intent level descriptors within the Proactive and Interactive domains followed by the new categories that emerged to serve the needs of this research.

This process occurred in four phases, shown in the figure below, in response to the research questions. Firstly, I devised three new categories within the Proactive and one within the Interactive domain. Secondly, I identified the style of data by recording specific musical events, that would both meet the quantitative requirements of my methodological design and which would address the research questions from this angle. Thirdly, criteria were determined within each category to generate quantitative data but also meet the requirements of qualitative analysis. Lastly, I devised a scoring system to apply to the criteria so that scores could be created for each participant, recording the frequency of particular musical events applicable to the different areas of the composing process. This would enable me to dissect the musical material from different perspectives and analyse it both quantitatively and qualitatively, as befitting the aims and objectives of the research.

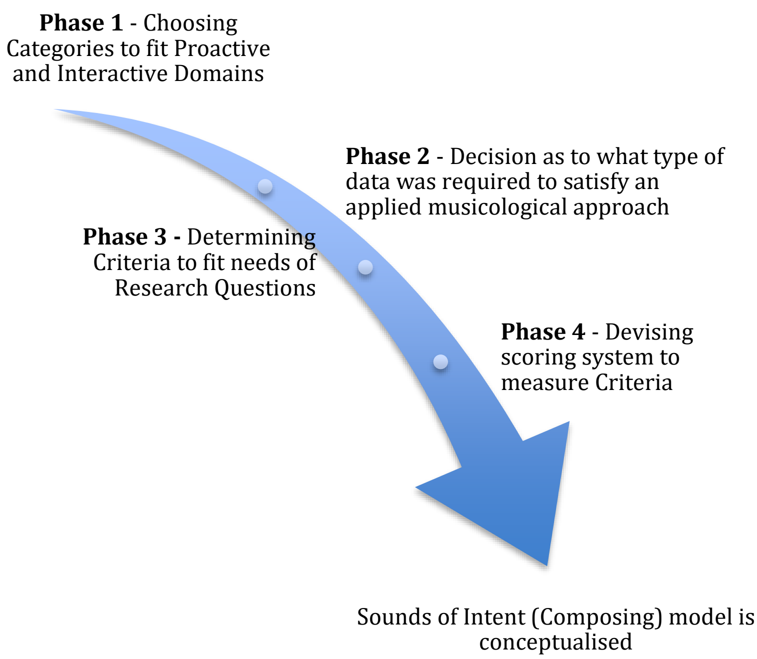


Fig. 9: Phases of adaptation and development for Sounds of intent (Composing) model

3.6.2.5 Process and outcomes of adaptation and the creation of new criteria

The movement through the four phases described will now be explained, commencing with the development of domain categories. As referenced below, this research relates to aspects of composing and composition, which thus determined the creation of any research instruments or SoI adaptation. The process of composition is described by Kratus (1989) as 'one of exploring and developing musical ideas, ultimately resulting in closure on a unique musical product' (p. 6) and it is worth bearing in mind the definition above, which has been adopted philosophically and operationally herewith. Moreover, it is the correlating of criteria to compositional processes based on the approach, if not the specific progression measures, of the original SoI framework, adapting it from levels of progress to criteria of composing.

Proactive Domain

The original 6 levels of the Sounds of Intent 'proactive' domain are:

1. (Makes sounds unknowingly – removed)
2. (Makes or controls sound intentionally – removed)
3. Makes simple patterns in sound intentionally through repetition or regularity
4. (re) creates distinctive groups of musical sounds ('motifs') and links them coherently
5. (re) creates short and simple pieces of music; potentially of growing length and complexity; increasingly 'in time' and (where relevant) 'in tune.'
6. Seeks to communicate through expressive performance, with increasing technical competence; creates pieces that are intended to convey particular effects.

Following the approach described above, Levels 3, 4, 5 and 6 were identified as relating to the process of composing (a crucial component of all research questions for this study) and level 6 as also responding to stimuli (research question 2). This was identified in terms of 'creates pieces to convey particular effects,' i.e.. imitating material from the contrasting musical stimuli heard before composing and improvising. As research questions 1, 2 and 3 required comparisons of children's compositional structure and content to be answered, it was necessary to devise a means of clearly scoring musical occurrences from video data that would generate numerical data for statistical comparison. Thus the categories needed to be precise, simple and logically connected through musically common factors. To achieve this the 'core' factors of sound, motif, metrical patterns and scales and expression were chosen to link the new areas of measurement and reflect the components of musical composition. As a result, the following categories were created within the proactive domain.

New Proactive Domain categories:

1. Proactive in the form of improvising or Composing (**PC**)
2. Proactive in the context of using the Stimulus (**PS**)
3. Proactive in the form of Evaluating the Product (composition) (**EP**)

Within the first category – PC - four scoring criteria were created:

Proactive: Improvisation towards both: (PC = Proactive Composing)

- **PC3** Imitates own sounds
- **PC4** Imitates own motifs
- **PC5** Uses scales and metrical patterns
- **PC6** Performs expressively

These four (PC) criteria were designed to specifically identify individual participants' actions within the realm of self-imitation and compositional development. How scales and metrical patterns would be used was also considered a possible indicator of a child's experience with formal instrumental tuition as Western major and harmonic minor scales form a large part of the UK's music examination content. As previously explained they were not intended to progress in complexity as in the original SoI levels, but instead focused on four areas of an individual response, which when applied over multiple participants, generated enough data to make valid comparisons. Also, unlike the original model, these criteria could be achieved in isolation and not as a consecutive model; it would be possible to perform expressively without using scales and metrical patterns, for example.

As research question 1 asks ‘Are there differences between the creative products of children aged 9-11 in response to Experimental and classical musical stimuli and if so what are those differences?’ four new Proactive domain criteria (PS) were created to identify children’s musical imitation and engagement with the contrasting musical stimuli played to them. These were:

Proactive: Use of Stimulus (PS=Proactive use of Stimulus)

- **PS3** Imitates sounds from stimulus
- **PS4** Imitates motifs from stimulus
- **PS5** Uses scales and metrical patterns and structure from stimulus
- **PS6** Imitates expression from performance of stimulus

These criteria are linked via their specification on the presence of the core factors: sound, motif, metrical patterns and scales and the use of expression.

The difference between PC and PS criteria is that PC is concerned with individual improvisation/composing and PS is concerned with the individual and their stimuli response.

Within the third Proactive category, Evaluating the Product (EP), eight criteria were created to capture the repetition, manipulation and intention of musical events and their dominance as structural features of the composing process. This was to explore how (much) participants had used sounds, motifs, patterns and expressive devices to create a musical form, narrative and structure.

Proactive: Evaluating the Product (EP=evaluation of the product)

- **EP3a** Repetition of sound as a structural feature
- **EP3b** Manipulates qualities of sounds to create particular stated effects.
- **EP4a** Repetition of motifs as a structural feature of the piece
- **EP4b** Uses motifs to create particular effects
- **EP5a** Uses scales, metrical patterns and form to create coherent structure
- **EP5b** Uses scales, metrical patterns and form to create meaningful narratives
- **EP6a** Deliberately uses expressive effects to articulate structure
- **EP6b** Deliberately uses conventional expressive devices to convey particular effects

All newly developed criteria were designed to be simple and direct enough to ensure that scoring remained consistent across all participants. Their specificity meant that each could be directly referred to in relation to a musical score interpretation or video clip, providing concrete examples for validity. However, they were also flexible enough to refer to the multitude of creative possibilities that would occur during the project.

The separation of self-imitation (PC) use of the stimulus (PS) and deliberation and manipulation of sounds (EP) as three areas of observation sought to satisfy the needs of the research questions.

The process of structuring the Interactive domain will now be presented.

Interactive Domain

The original progressive levels of the 'interactive' domain are:

1. Relates unwittingly through sound
2. Interacts with others using sound
3. Interacts through imitating other's sounds or through recognising self-being imitated
4. Engages in dialogues using distinctive groups of musical sounds (motifs)
5. Performs and/or improvises music of growing length and complexity with others, using increasingly developed ensemble skills
6. Makes music expressively with others, with a widening repertoire, in a range of different styles and genres.

Again levels 3, 4, 5 and 6 were identified as fundamentally meeting the needs of the research questions, particularly question 4a: *Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in small groups?'* and 4b: '*Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in small groups?'*

Moreover, it was judged to provide a suitable structure on which to base eight new criteria focused on the intention and imitation of musical responses, interactions and communications occurring between participants. These eight criteria were placed under a single category named Interactive Composing (IC).

<u>Interactive</u>: Improvising / composing (IC = Interactive Composing)

- **IC3a** Deliberately provides sounds for others to imitate
- **IC3b** Imitation of others' sounds
- **IC4a** Deliberately provides motifs to 'engage' others
- **IC4b** Imitates others' motifs
- **IC5a** Deliberately provides scales and metrical patterns for others to imitate
- **IC5b** Imitates others' use of scales and metrical patterns
- **IC6a** Deliberately plays expressively through the playing /performing of the composition
- **IC6b** Imitates others' expression whilst playing

These criteria purposefully oppose each other (as either the initiator or imitator of sound) so that the occurrence of musical interaction could be separated and accurately recorded and analysed per participant and per group. Maintained are the core factors (sound, motif, metrical patterns and scales and expression). Again, these criteria do not rely on one another e.g. imitating another player's motifs does not necessarily mean that individual will intentionally produce motifs for imitation.

I scored the video data and to minimise bias, and ensure generalisation of the findings to future research, inter-rated reliability was also sought with 10% of the data. This was done by an independent expert, which would also confirm that the scoring system was straightforward enough to be used by other music teachers. The score rating was created with the purpose of not only generating numerical (quantitative) data but also as an indicator of the level of an individual's musical performance. For example, if a participant achieves a 5 for **EP5b** *'Uses scales, metrical patterns and form to create meaningful narratives*' it not only serves to record their continuing use of these musical devices, but indicates their ability to manipulate sound at a greater level of understanding of its purpose than a participant scoring a 1. This would suggest that whilst they may have used a scale or pattern at some point in their performance, it did not intentionally occur as a result of an in-depth level of musical understanding. Thus the number of times a participant repeated their action was fundamental to generating data that would answer the research questions focused on differences between participants' creative products. Presenting differences numerically was a simple and absolute way of showing results from one perspective across the two variables (levels of musical knowledge/instrumental tuition and contrasting musical stimuli).

To create such a straightforward and replicable rating scale with sufficient scope for differentiation, the scoring adopted the following scale:

0 – No evidence of action occurring

1 – One example of action occurring

2 – Two examples of action occurring

3 – Three examples of action occurring

4 – Four examples of action occurring

5 – Continuous evidence of actions

Individual participants were numerically coded (for confidentiality) and scored (a score of 0-5 was applied to each criterion within the Proactive and Interactive domains using the rating scale shown above).

The process of configuring a framework in which to generate data for analysis was driven by the research questions. I felt that the Sounds of Intent model provided a solid theoretical base from which this could occur. Figure 10 below gives an overview of the process of configuring the new model.

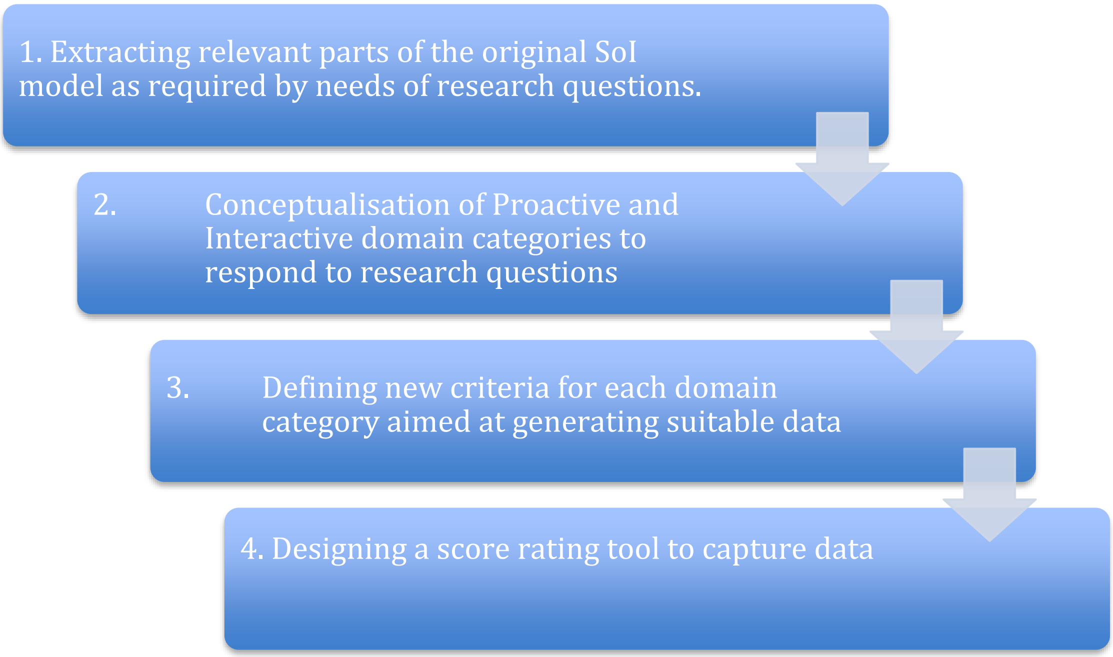


Fig. 10: Process taken to develop the new SoI (Composing) model

The previous sections outlined the need for a robust theoretical framework to be applied to the research, based on the outcomes of the pilot study. Whilst the SoI framework (Ockelford, 2013) provided the foundations for the theoretical model underpinning the research presented here, it has been shown where the limitations of the model were concerning the research questions investigated here. Once identified as both fit for purpose in its theoretical and procedural underpinnings, and needing adapting to investigate composition-specific factors in 9 - 11 year-old children, the process of adaptation and of generating criteria (as opposed to levels) within a new conceptual framework was laid out above. Figure 11 below shows a visual representation of this adaptation, representing the new conceptual framework underpinning this research.

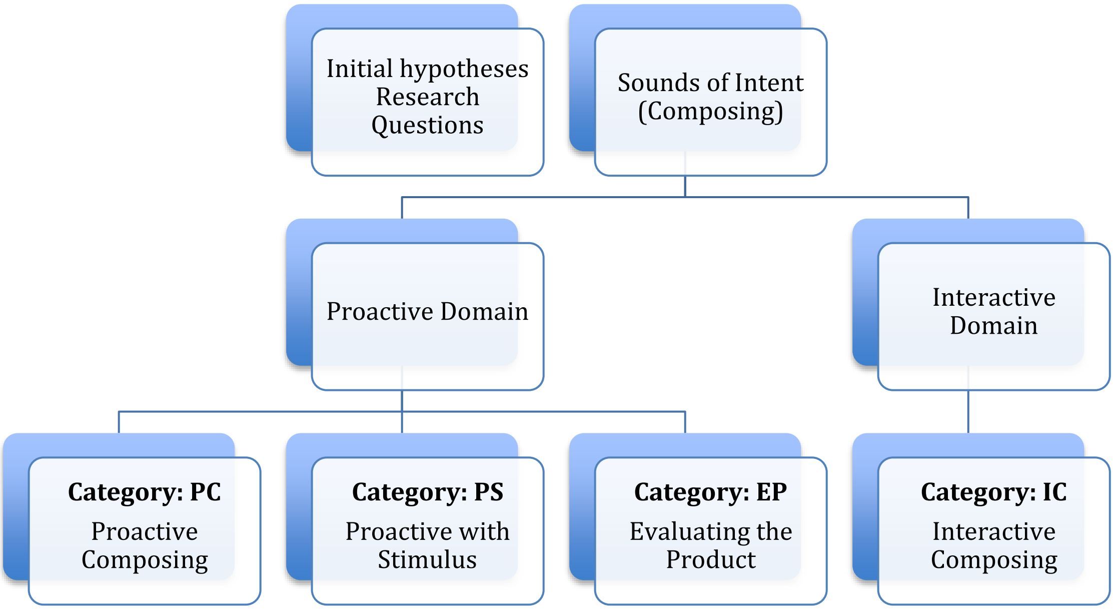


Fig. 11: The Sounds of Intent (Composing) Model

Figure 12 below shows the model with category criteria included which were designed and then employed to generate numerical data for analysis:

Proactive (Composing)
Domain Categories:
PC - Proactive Composing
PS: Proactive with Stimulus
EP: Evaluating the Product

Interactive (Composing)
Domain Category:
IC - Interactive Composing

PC Criteria

PC3: Imitates own sounds

PC4: Imitates own motifs

PC5: Uses scales and metrical patterns

PC6: Performs expressively

PS Criteria

PS3: Imitates sounds from stimulus

PS4: Imitates motifs from stimulus

PS5: Uses scales and metrical patterns and structure from stimulus

PS6: Imitates expression from the performance of stimulus

IC Criteria

IC3a: Deliberately provides sounds for others to imitate

IC3b: Imitation of others' sounds

IC4a: Deliberately provides motifs to 'engage' others

IC4b: Imitates others' motifs

IC5a: Deliberately provides scales and metrical patterns for others to imitate

IC5b: Imitates others' use of scales and metrical patterns

IC6a: Deliberately plays expressively through the playing /performing of the composition

IC6b: Imitates others' expression whilst playing

EP Criteria

EP3a: Repetition of sound as a structural feature

EP3b: Manipulates qualities of sounds to create particular stated effects.

EP4a: Repetition of motifs as a structural feature of the piece

EP4b: Uses motifs to create particular effects

EP5a: Uses scales, metrical patterns and form to create a coherent structure

EP5b: Uses scales, metrical patterns and form to create meaningful narratives

EP6a: Deliberately uses expressive effects to articulate the structure

EP6b: Deliberately uses conventional expressive devices to convey particular effects

Fig. 12: The Sounds of Intent (Composing) Model with category criteria

<u>3.6.2.6 Conceptual underpinnings of the analytical framework: Zygonic Theory</u>

Having focused on explaining the process of using Ockelford's (2013) model of Sounds of Intent to build Sounds of Intent (Composing) for use in generating quantitative data for this study, this chapter will now demonstrate how this model was used to generate the necessary qualitative data, supported by the concept of zygonic theory.

The figure above (Fig. 12) shows how the conceptualisation of the Sounds of Intent (Composing) model has combined the core factors of sound, motif, metrical patterns and scales and expression with the defining features of zygonic theory, i.e. imitation, repetition and deliberation (intention), in order to analyse the creative products of participants in this study. What is the significance of this model in compositional terms and why will it form the basis of an analysis of children's musical outputs in this particular research context? The aim of qualitative analysis in this research context is to explore the connections and relationships between creative products produced by children of varying levels of musical knowledge in response to contrasting musical stimuli. Firstly, the model does not distinguish between musical styles; the criteria apply to any musical stimulus. The use of experimental and classical musical stimuli is a crucial component of the research design and therefore the analytical tool needed to provide an unbiased means of recording events. Secondly, the exploration of musical connections is considered within the context of zygonic theory, using the key components of imitation, repetition and sound relationships to infer musical understanding and communication. Why these aspects of music can pertain to be indicative of the psychological processes behind musical creativity can be related to how music is listened and processed cognitively.

Ockelford (2013) explains this by first considering what components of music itself constitute musical understanding in the ears of a listener. Why and how does music make aural sense and generate, in its abstract state, a tangible source of communication and understanding? This is a complex yet logical phenomenon. In the same way, a single spoken word lacks meaning without its contextual relationships to that which has been said or that which will be said, single, isolated sounds cannot be considered ‘music’ in the general sense. This is because they lack the ability to carry musical meaning to the listener as individual, singular events. Thus, arguably, a sound requires a relationship to that which follows and that which has preceded it to generate meaning in the aesthetic sense. In terms of zygonic theory, Ockelford (2013) proposes that as music is a temporal art, i.e. it is experienced whilst it is occurring through time, that unless sounds are juxtaposed in time they will not be heard as part of a larger whole. Moments of silence or lack of imitation within an expected time frame indicate the end of a sonic relationship and therefore contribute to the structural understanding of the boundaries of groups of sounds. Simply put, repetition (this could be pitch, rhythm, key) within musical phrasing is aurally necessary for a listeners’ understanding to take place. Phrasing in this sense includes the use of silence to ‘end’ a group of sounds and therefore influence their relationship to the next group. The recognition of these relationships is cognitively challenging, as the possibilities of the relationships between groups of notes are infinite. Zygonic theory suggests that aurally this is perceived in two different ways:

1. Where one group (of notes) is perceived to derive as a whole from another (e.g. 5 descending pitches repeated exactly or at a lower pitch)
2. Where one aspect of a group (of notes) is perceived as deriving from another (e.g. where the first and last pitch of a group of 5 is repeated, but the middle 3 are changed)

The levels of imitation between musical events are categorised by Ockelford (2013) as 'zygonic relationships' for example, 'Primary zygonic relationships' are defined as taking a pitch at or near the end of a phrase and using it to start the next (Ockelford, 2013).

Thus, it is the presence of these relationships, evident within composing and improvising in this research context that would indicate participants' musical understanding. Participants' use of imitation, repetition and deliberation alongside their manipulation of the musical elements of pitch, rhythm, motif, dynamics, metrical patterns and structural (musical) devices can be used to make observations as to their level of musical creativity. The identification of zygonic relationships between groups of notes and aspects of groups of notes within the notated scores and video recordings provides the material for triangulating interpretation. Analysis of the data can also then be evidentially identified with precision through the interaction of quantitative and qualitative methodology aimed at forming theoretically based causal explanations.

Applied Musicology (i.e.. using musical events to analyse musical interaction), was therefore at the forefront of the analytical approach for the data collected, using the newly created criteria from SoI (Composing) to generate numerical data, which could then be justified through critical exploration and grounded in existing theory.

3.6.3 Conceptualisation of main study design

The diagram below (Fig. 13) shows the final research design that was used for the Main Study to investigate: 'The effect of experimental musical material and instrumental tutoring on collaborative creativity in 9-11-year-old children.'

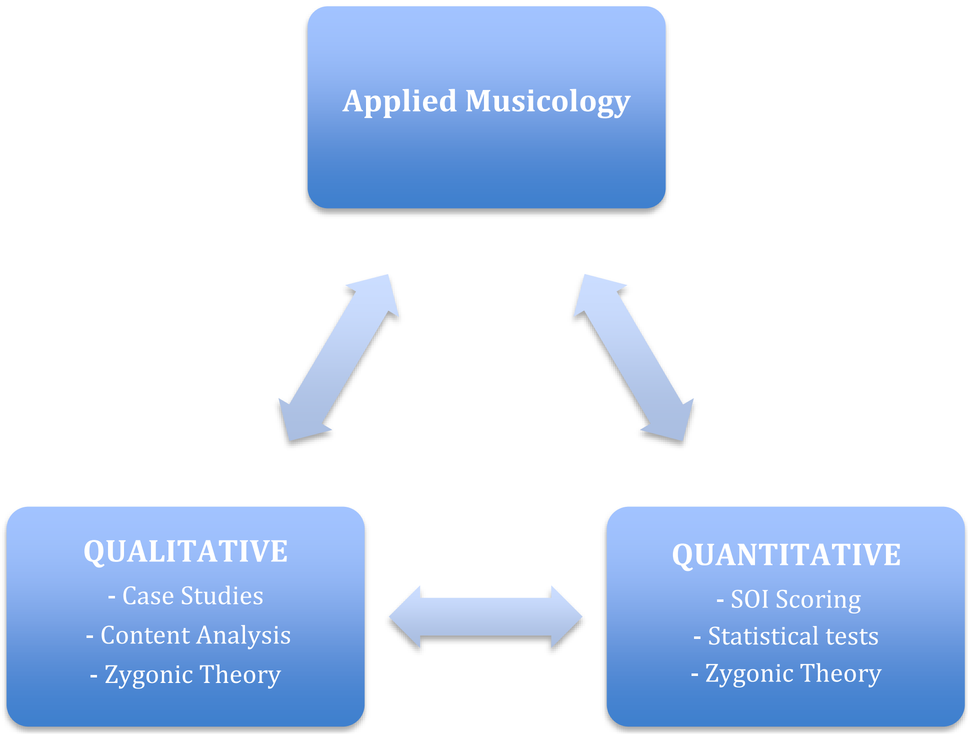


Fig. 13: Triangulation convergence design for Main Study to show the value of an applied musicological approach

Zygonic theory has been added to both qualitative and quantitative areas of applied musicology. Whilst not a method in and of itself, it can still be said to underpin both quantitative and qualitative aspects of the approach. Due to its relational character, the theory could be used to describe perceptions relating to sequencing when imitating by the students.

The design shown above differs considerably from the design of the pilot study, because it uses an applied musicological methodological approach. The rationale for this approach within the main study design will now be explained.

3.7 Methodological Rationale for the Main Study

3.7.1 Introduction

Having identified applied musicology as the most appropriate methodology for the research questions, I considered how the qualitative aspect of the analysis be best conducted. Due to the data being in video form, case study analysis emerged as the most viable option, for two reasons. Firstly, a case study is a research strategy and an empirical inquiry that investigates a phenomenon within its real-life context using in-depth investigation of a single individual, group or event to explore the causes or underlying principles. In this context the research questions for this study ask 'what is the impact of two variables (contrasting musical stimuli and instrumental tuition) on children's composing' and therefore seeks to understand the motivating factors for any impact that may be found through the examination of musical material. To answer the 'what' the research has to discern 'how' and 'why' these impacts are occurring, which could be best achieved through taking a selection of video data examples and exploring them in-depth via a case study approach and using each area of the SoI (Composing) framework.
How the scoring areas were applied to each research question is shown below:

1) Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli and of

having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to group composing?

This research question will use data from the Proactive Composing criteria.

2) In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of using experimental or traditional Western classical music as stimuli and of having or not having instrumental lessons, on children's use of stimulus material during group composing?

This research question will use data from the Proactive using the Stimulus criteria.

3) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons and of using experimental or traditional Western classical music as stimuli on the structure and content of 9–11-year-old children's compositions, composed in small groups?

This question will use data from the Evaluating the Product criteria.

4) Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons and of using experimental or traditional Western classical music as stimuli on 9–11-year-old children's capacity to compose coherently with others in small groups?

This research question will use data from the Interactive Composing criteria.

Using the numerical scores as a guide, I thus selected samples of high, medium and low scoring tutored and non-tutored participant groups, across both experimental and classical stimuli. The second justification for using a case study approach was that the amount of video data collected would be too much for in-depth analysis, which was not possible within the time frame.

The research questions also determined the need for the analysis to draw from a tangible theoretical basis. Having chosen a case study approach to the data, I then used zygonic theory to dissect and analyse video examples. This was achieved through notating the musical content of the videos and describing each aspect of the notation concerning the criteria score achieved using the SoI (Composing) framework for each participant in each group. This created a visual and descriptive picture of musical events. From this, I was able to identify patterns in musical content and compositional structure from which I could conclude cognitive processes and musical creativity, and relate findings across the methodological approach. Additionally, I would be able to create a broader understanding of the psychological processes involved in compositional processes and the effects of collaboration. Ockelford (2013) presents the zygonic approach as 'psychomusicological' in that it is a musicological theory based on psychological principles. Ockelford (2013) states that the 'perceived capacity of musical sounds for self-imitation lies at the heart of the theory' (and that the meaning of music on an emotional and communicable level is present in the form of the music and sounds themselves. Ockelford (2013) contextualises his theoretical standpoint amongst traditional 'music analysis' approaches to Western classical music (which tend to focus on the structure and intimacies of large classical works) and the practices of 20th century composers such as Schoenberg, who sought to understand music through focusing on small units or 'cells' (a small group of pitches with a pivotal role within a larger musical structure) of sound that could be used to determine structural indicators (such as the use of a repeated interval) and the formation (such as motivic repetition, inversion, reversal or diminution/augmentation of time values) of compositions.

I undertook a multi-dimensional approach to data analysis to answer each part of the research questions and therefore draw causal explanations. I also recognised that this particular theoretical approach aligned with my objectives towards musical analysis, given its rejection of traditional and formal approaches to stylised musical structures and its flexibility towards sonic meaning. From this viewpoint, I was less interested in the usual aims of class composition tasks with participants re-creating what they had heard and instead focused on the emotional and musically creative responses that were evoked through exposing participants to less rigid musical forms such as the music of Experimentalist John Cage.

In summary, through using the new version of the Sounds of Intent (Composing) framework, with an applied musicological approach, I would be able to accurately and meaningfully respond to the research questions through explaining and investigating the data being collected. This would lead to a development in current research on children's composing strategies and pathways and new insight into creative processes. It would also be possible to use the results to draw causal explanations and produce an example of original research using applied musicology to explore musical creativity.

3.7.2 Methods used in the Main Study Design to investigate:

'The effects of experimental musical material and instrumental tutoring on Collaborative Creativity in 9-11-year-old Children'

3.7.2.1 Educational Setting

The main research study took place in an independent school who used a Kodaly based syllabus 'Jolly Music' (Rowsell and Vinden, 2009) for music class teaching. The majority of children attending this school had attended since reception age (UK school entry-level), were familiar with the musical language of Kodaly (for expanded information on the Kodaly method of teaching music and Jolly Music see analysis) that forms the basis of this syllabus. Children aged 4-7 receive two 45 minute timetabled music lessons per week and from 9 years old onwards this is compressed into a double session of 90 minutes once a week.

I was employed at this school in the role of 'junior music teacher' delivering lessons to boys and girls in a variety of year groups, however the year group used in the study were not taught by the researcher. The head of music and a trainee music teacher carried out all recorded sessions, reducing the element of bias and further enhancing the reliability of the data.

3.7.2.2 Participant sample

This study used non-probability sampling, drawing the participant population for the study from what was available as the use of randomisation techniques was not possible due to circumstances and sample size generally. As the sample used did not rely on randomisation this increased the risk of bias. The different types of non-probability sampling are as follows:

- Convenience or accidental sampling – members or units are selected based on availability

- Purposive sampling – members of a particular group are purposefully sought after

Purposive sampling was used for this study, which sought to use children aged 9-11 years, as that was the age group used in the Pilot Study. Also, I did not teach this age group and therefore was able to exclude myself from the data collection process, thus reducing the risk of bias. As the children were the same age as those used in the pilot study, I knew they would be able to successfully manage the practical requirements of the project, a factor that is also supported in the literature by research such as that of Swanwick and Tillman (1988), which proposes that although not rigidly defined by age, certain structures of musical thought and action precede others as they emerge during childhood and that children's musical capabilities in terms of composing were linked to their age (Swanwick & Tillman 1986, Swanwick 2008, see also Kratus 1989).

Further, the Head of Music (who had taught a large percentage of these children for five years) viewed this year group as representing a broad sample of musical and academic ability, based on the analysis that of the 69 children 51% attended choir as an outside activity, 10% were on the SEN (Special Educational Needs) register and received additional academic learning support in literacy or numeracy, 5% were identified as gifted and talented (gifted and talented pupils at this school attended an extracurricular enrichment program) and 8% were recognised by the music department as high achieving in music (this was an allocation given according to grade levels achieved with the Associated Board of the Royal Schools of Music) on one or more instruments. None of the information regarding which children these were was known to me in any detail during or after the project. Therefore, the final sample consisted of:

48 girls aged 9-11

21 boys aged 9-11

Total sample: 69 children

It could be argued that this school was not representative of a typical UK school in terms of the quality and quantity of music education that these children received (see Independent Schools Inspectorate report 2015 which ranked the school Excellent in every area of learning). However, the benefits of conducting the research at this school, such as the removal of researcher bias in that the activities were being conducted by colleague music teachers, there was access to a large number of children for a substantial period, and the enthusiasm and willingness of the school to facilitate the research, were considered to outweigh this factor.

3.7.2.3 Participant Characteristics

Children were divided according to levels of instrumental tuition experienced before the commencement of the study:

Gender	**Tutored**	**Non-Tutored**
Girls	38	10
Boys	14	7

Table 1: Distribution of tutored (children who are receiving instrumental lessons) and non-tutored (children who are not receiving instrumental lessons) participants

3.7.2.4 Procedures

Figure. 14, below, charts the procedures undertaken for all participants over the course of 14 weekly sessions of 90 minutes:

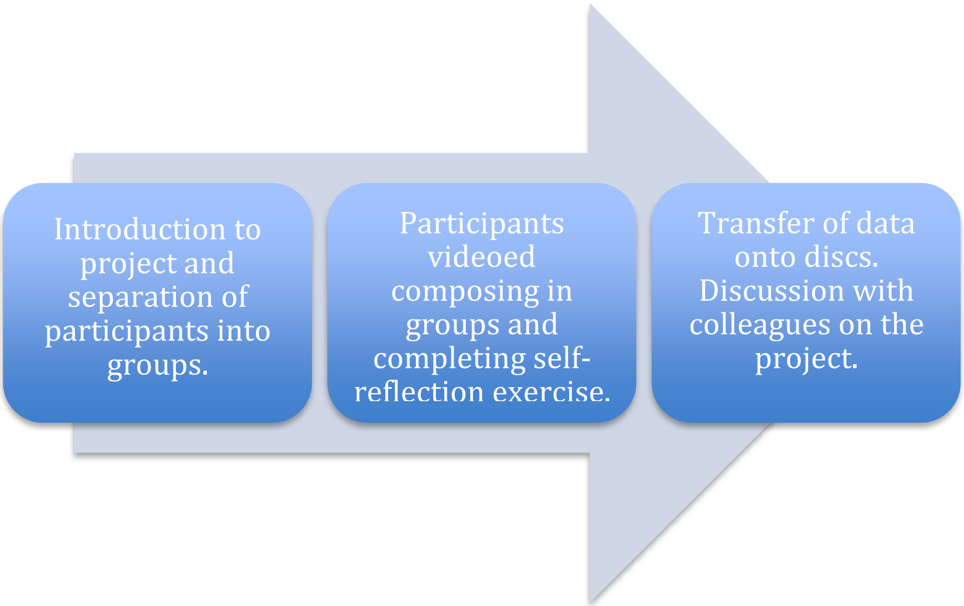


Fig. 14: Procedures used to conduct the 14 x 90 minute sessions of the Main Study.

3.8 Practical research sessions

The research took place over 14 sessions, each 90 minutes long, for each group. Two classes of 24 girls were taught on Friday mornings and one class of 21 boys was taught on Friday afternoons. Four musical stimuli were used: Radetsky March by Strauss and Raindrop Prelude by Chopin as classical stimuli, and Sonatas and Interludes for Prepared Piano by Cage and Schnee Movement 1 by Abrahamsen as experimental music. Participants listened to between two and three minutes of each piece of music.

Figures. 15 and 16 below outline what participants received:

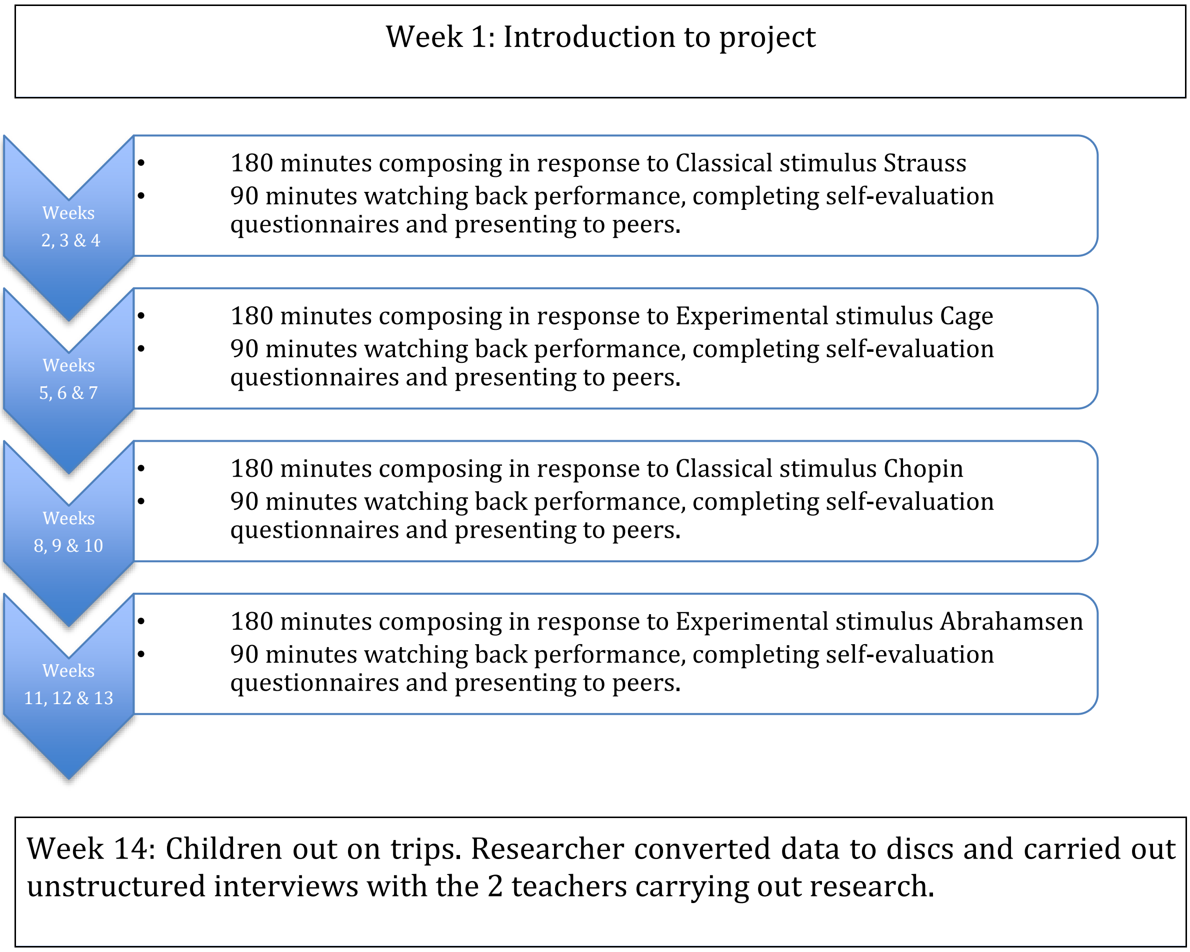


Fig. 15: Process of collecting data for boys over 14 x 90-minute sessions

Week 1: Introduction to project

Weeks 2, 3 & 4

All girls were absent for weeks 2 and 3. During week 4 girls were re-introduced to project and spent time exploring the percussion instruments.

Weeks 5, 6 & 7

- 180 minutes composing in response to Experimental stimulus Abrahamsen
- 90 minutes watching back performance, completing self-evaluation questionnaires and presenting to peers.

Weeks 8, 9 & 10

- 180 minutes composing in response to Classical stimulus Chopin
- 90 minutes watching back performance, completing self-evaluation questionnaires and presenting to peers.

Weeks 11, 12 & 13

- 180 minutes composing in response to Experimental stimulus Cage
- 90 minutes watching back performance, completing self-evaluation questionnaires and presenting to peers.

Week 14: Children out on trips. Researcher converted data to discs and carried out unstructured interviews with the 2 teachers carrying out research.

Fig. 16: Process of collecting data for girls over 14 x 90-minute sessions

Table 2 shows the number of participants involved in each composing activity with each stimulus. The total sample is 69 children – where this number is less than 69 indicates participant absence for that activity. Due to the longer time frame allocated to the study, it was possible to use two different stimuli for each musical style, which is shown in Table 2 below.

	Experimental Stimulus		**Classical Stimulus**	
	Cage	Abrahamsen	Strauss	Chopin
Boys	21	20	20	21
Girls	48	41	0	45
Total	69	63	20	65

Table 2: Total number of participants involved in each research activity

The following section describes the procedure employed for both the practical composing sessions and the self-evaluation sessions

3.8.1 Details for 9 x 90-minute practical composing sessions

1. Playing of musical stimulus – each participant asked to write down initial responses on hearing each stimulus
2. Division into tutored and non-tutored working groups
3. Playing of stimulus again
4. 60 minutes composing a piece

5. Performance of compositions – informal 'take 1' followed by a brief discussion with peers. Teachers were encouraged to interject as little as possible, act as initiators for each part of the session and were in charge of filming the performances.
6. Performance – formal 'take 2' if participants wanted to use their adjusted version as their final piece.

3.8.2 Details for 4 x 90-minute self-evaluation sessions

The purpose of the self-evaluation sessions was to ensure that participants engaged in a process of self-assessment, as reflective writing and discussion provide an opportunity and a means by which the learner can control his or her language strategies, putting previous experiences into words, and making sense of new experiences by finding ways of relating them to the old (Towler and Broadfoot, 1992). Sharing ideas and participating in critical analysis of their work also served to give each child a sense of context in the sense of starting and finishing each experience with each stimulus. Initially, video performances were played back to all participants who then worked together to complete one questionnaire per participant. The questions chosen were aimed at how successful they felt the composition they had constructed was and why. This was followed by a presentation by each group on the piece they had composed with a chance at the end for other participants to ask questions, which was video recorded.

I included these sessions in the study design for two reasons. Firstly, they would provide valuable participant insight into the meaning of the musical material that had been created, which would relate to the research questions, and secondly, the school insisted that some form of 'reflective learning' happened in order that participants could judge the success of the project and justify spending a term doing it. The head of the music department was required to give reasons as to why 13 timetabled music lessons had been spent composing and how this fitted in with his long-term planning and assessment. It transpired, however, that although the participants were all extremely positive about their experiences there was very little value in the videos for me in terms of answering my research questions. This was because the participants, perhaps due to their age, did not give focused discussion regarding the musical devices or content (e.g. playing loudly, playing fast, repeating a certain pattern of pitches) they had used and instead gave lengthy descriptions of the order of events. (e.g. first, we did this and then we did this). I decided that although the video footage collected may serve useful in the future for further research, it did not provide useful data for this particular study and therefore was not included in the analysis. For the participants, it was felt to be a valuable part of their learning process and fulfilled the 'reflective learning' requirements of the school. The final week (week 14) all participants were out on trips so time was used to collate all data, transfer it to CD Rom and remove all videos permanently from IPads in line with data protection policies in operation at the school and the ethical parameters underpinning this study.

3.8.3 Collection of data used in the analysis

Visual and audio data used for analysis were collected in the form of 46 performance videos for boys and 67 performance videos for girls and textual data was collected in the form of 51 written scores (these were not used by the researcher, but were an option for the children during the activity).

3.8.4 Data Analysis Strategy

The process of creating the data set will now be explained.

3.8.4.1 Scoring Process

The first aspect of quantitative analysis was to score individual participants using the Sounds of Intent (Composing) Model. I gave each participant a score of between 0-5 for each of the category criteria, as described in section 3.6.2.5, p. 112 This numerical score was applied to each participant through observation of the video and notated (musical) score for each group performance. This scoring method was applied to all participants across all 3 stimuli exposures and used to create a data set. The numbers were then collated into Excel.

This created 24 categorical scores for each individual; 4 Proactive Composing (PC) scores, 4 Proactive using Stimulus (PS) scores, 8 Evaluating the Product (EP) scores and 8 Interactive Composing (IC) scores.

The data were subjected to both non-parametric and parametric tests using the independent variable tutored / non-tutored and the dependent variable: stimulus Tests of normality were violated so non-parametric repeated measures tests were conducted. This was because the same participants were subjected to the same changed conditions three times. The change in condition was the change in musical stimulus. Repeated measures tests would compare the scores across all possibilities: tutored and non-tutored, tutored and non-tutored with stimulus, tutored with stimulus and non-tutored with stimulus. To increase the validity and reliability of the sample participants with no score (and who were, therefore, absent) were removed. All of the data collected using the musical stimulus Strauss was removed, as no female participants completed this part of the practical data collection, thus the data set used compared 1 classical stimulus response with 2 experimental stimulus responses for all participants.

3.8.5 Ethical considerations

Participant consent forms for parents of participants, the head of music, the head of boys' prep and head of girls' juniors and the school principal were produced in line with the University of Roehampton guidelines. Parents completed their responses online and staff completed paper copies. All were obtained before the project commenced.

I had already obtained ethical approval from the University but had the project reviewed to ensure this was still applicable.

3.8.6 Materials used and conditions applied

The conditions for this study were the same for all participants, the only difference was the space used, as boys and girls were taught in different classrooms, but this was not considered to negatively affect the factors being measured, as the conditions within these two rooms were equal. I did not deliver the sessions to participants but provided lesson plans, recordings of John Cage Sonatas and Interludes for Prepared Piano, Volume II No.1, Hans Abrahamsen Schnee 1st Movement (experimental music stimuli), Johann Strauss Radetsky March orchestral version and Chopin's Raindrop Prelude piano solo version (classical music stimuli) as well as general support during the research to teachers and communication with parents.

The measures applied were that each participant (groups remained the same for the duration of the research project) was identified as non-tutored or tutored and coded N or N-T and as Male or Female, coded M or F. This assisted me in identifying children. Each participant was scored as per the scoring rating using the Sounds of Intent (Composing) criteria resulting in three sets of scores per participant for each of the three different stimulus responses. These scores were used to create a data set on which to run statistical tests.

3.9 Final conceptualisation

Chapter 3 has presented the thinking and processes involved in creating a solid and credible research design that would effectively respond to the needs of the initial hypotheses and research questions. The reasoning behind using an applied musicological approach was based on the success of comparable studies within the literature in the field of music education and in the choice of a theoretical foundation that would generate relevant and valid data has been provided.

In determining the design for the quantitative approach (experimental or correlational) I was aware that although the goals of identifying causal relationships, the defining operationally of variables, and the employment of statistical tools are often similar in experimental studies and correlational studies, the difference lies in the degree of control the researcher has over the variables. In reality, it is not possible to have complete control over the independent variables such as educational background, social class or genetic inheritance, since they have already occurred and cannot be manipulated. It is also widely known that as social science researchers contend with human beings - as in this study with children - as the object of their investigations, social science researchers rarely have the complete control over variables in comparison to scientists in laboratories (Black, 2002).

With this in mind, this research design employed the necessary rigour to minimise a lack of validity and bias and included factors such as not delivering the research activity to the participants myself and the use of an independent expert to re-score a random selection of video data. The correlational study design allowed me to see if there was any relationship between pairs of variables in a single group, the correlation indicating the relative strength of the relationship. As the research questions dictate the need to explore relationships of the variables in order to make plausible suggestions, a correlational quantitative approach was thus used to investigate the variables of tutored / non-tutored (TNT) and contrasting music stimuli (Stimuli). These variables were drawn from the initial hypothesis suggested: '*That instrumental learning has an impact on children's musical creativity, and that different musical stimuli can evoke different musical responses,'* and the research questions that emerged from this hypothesis. Following data collection of group videos, the process for quantitative analysis is shown in figure 17, below.

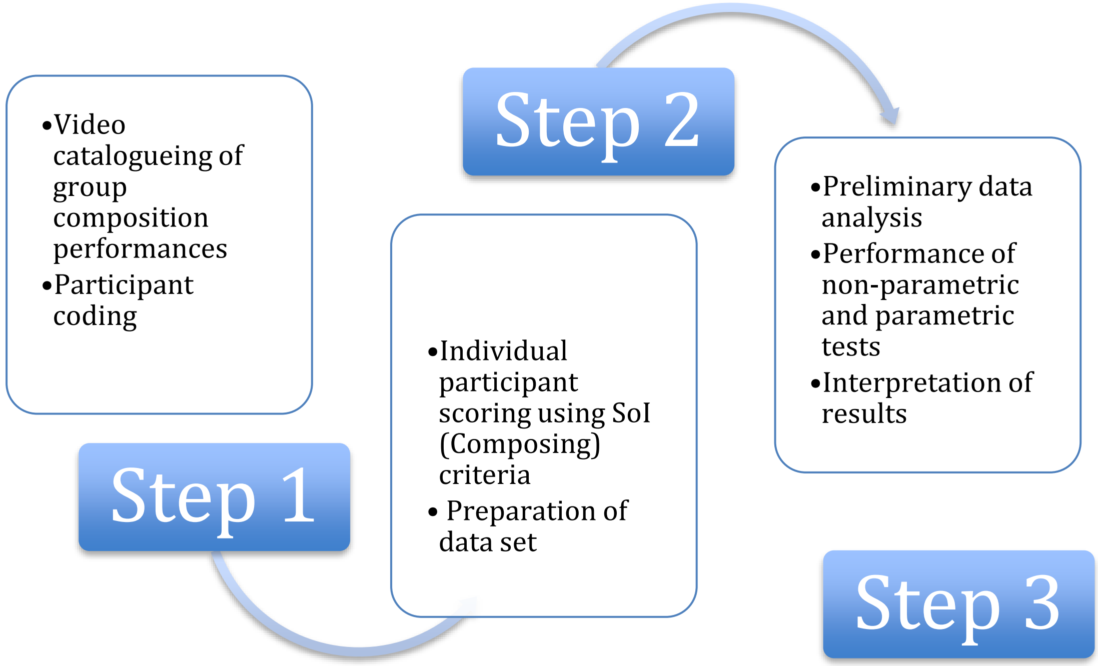


Fig 17: Processes for quantitative analysis

Proactive (Composing) PC
Domain Categories:
PC - Proactive Composing
PS: Proactive with Stimulus
EP: Evaluating the Product

Criteria - PC

PC3:Imitates own sounds

PC4:Imitates own motifs

PC5: Uses scales and metrical patterns

PC6: Performs expressively

Criteria - PS

PS3: Imitates sounds from stimulus

PS4:Imitates motifs from stimulus

PS5:Uses scales and metrical patterns and structure from stimulus

PS6:Imitates expression from performance of stimulus

Criteria - EP

EP3a:Repetition of sound as a structural feature

EP3b: Manipulates qualities of sounds to create particular stated effects.

EP4a:Repetition of motifs as a structural feature of the piece

EP4b:Uses motifs to create particular effects

EP5a:Uses scales, metrical patterns and form to create coherent structure

EP5b:Uses scales, metrical patterns and form to create meaningful narratives

EP6a:Deliberately uses expressive effects to articulate structure

EP6b :Deliberately uses conventional expressive devices to convey particular effects

Interactive (Composing) IC
Domain Category:
IC - Interactive Composing

Criteria - IC

IC3a: Deliberately provides sounds for others to imitate

IC3b: Imitation of others' sounds

IC4a: Deliberately provides motifs to 'engage' others

IC4b: Imitates others' motifs

IC5a: Deliberately provides scales and metrical patterns for others to imitate

IC5b: Imitates others' use of scales and metrical patterns

IC6a: Deliberately plays expressively through the playing /performing of the composition

IC6b: Imitates others' expression whilst playing

Fig. 18: Sounds of Intent (Composing) Model and scoring criteria

3.10 Concluding comments

The theoretical basis (zygonic theory) and the music development framework (Sounds of Intent - Composing) underpinning this research design have previously been explained. These two investigative tools align with the analytical perspective required for this exploratory research and the next two chapters address how these tools were utilised within an applied musicological approach to conduct appropriate analysis. In chapter 4, results part I applied musicological (quantitative) analysis and results will be presented, followed by chapter 5, results part II applied musicological (qualitative) analysis detailing six comparable case studies and the findings thereof.

Chapter 4 - Applied Musicological Analysis Part I - (Quantitative)

4.1 Introduction

This research uses an applied musicological approach that subjected the data to a dual perspective of quantitative (statistical tests) and qualitative (case studies) analysis of musical material. The Sounds of Intent (Composing) model was used to create numerical data for statistical analysis. This chapter presents the results of the quantitative aspect of the study. Firstly, I explain how validity was achieved within the scoring of participants and secondly present the results of non-parametric tests that were run on the data.

4.2 Intra Class Correlation tests to ensure reliability of the scoring method

As previously explained within the methodology chapter, the scoring of participants using the SoI (Composing) framework was carried out first by me and then by an independent expert who re-scored 10 % of the randomly selected data. The expert had over 20 years of experience in teaching music, had studied composition at post-graduate level and is now a published composer of contemporary works. In order to compare the SoI (Composing) scores to ensure validity, a test of Intra Class Correlation (ICC) was conducted. As the same raters scored each sample of data a 'Two-Way Random' ICC test was used as 1) it models both the effects of the rater and the ratee (i.e. two effects) and 2) it assumes a random effect of ratee but a fixed effect of rater (i.e. a mixed effects model). The ICC showed that the intra class correlation between the two raters is statistically significant ($p< .001$). There is a high correlation coefficient at r = .816. (90% C.I. at .72 - .87) with a variance of .15 between the lower and upper bound indicating a tight range. Therefore, the actual intra class correlation score in 95 out of 100 tests is only 72-87 and can be considered applicable to a wider population. This implies that this sample is also an accurate representation of the larger data set.

To provide a visual representation, figure 19 gives a comparison of the scores from a one-way ANOVA, which determined that there was no statistical difference between the average scores of the two raters.

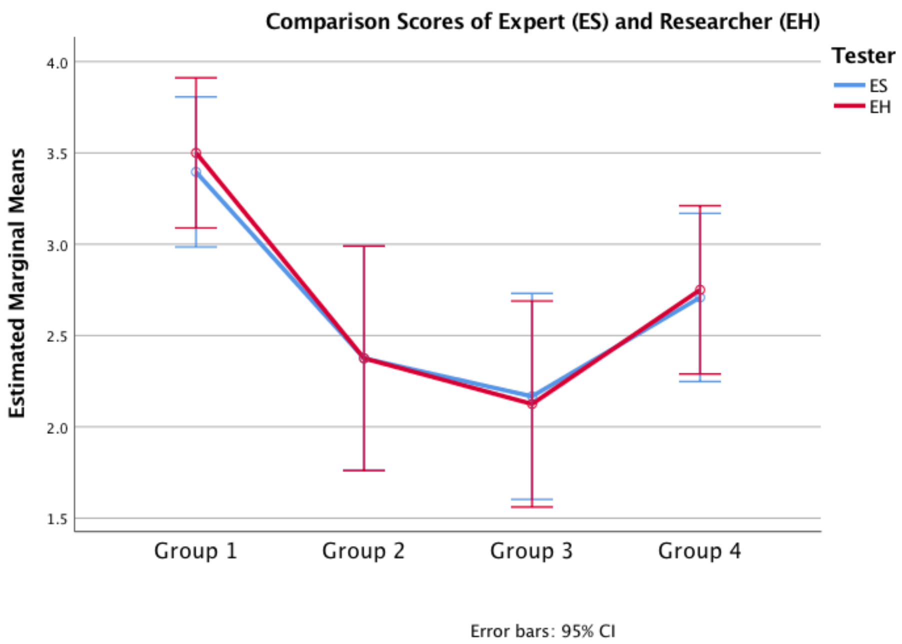


Fig. 19: Comparison of scores given by the Expert Scorer (blue) and the Researcher (red) for each of the four groups of participants.

The results indicated very little difference in mean scores between the Expert Scorer (*M*=2.661) and Researcher (*M*=2.688), and the difference was not statistically significant ($p = .932$).

The scores given by this expert did not deviate sufficiently from mine (Researcher) to indicate a need to re-score the entire set.

4.3 Preparation of data set for statistical tests

Following collating and checking the validity for the set of SoI (Composing) scores, I then prepared a data set for use with statistical tests. As a reminder the sample consisted of 69 children, participants who were absent for any day and had nil score were removed (18 in total), as were all of the male Strauss classical stimulus data

4.4 Statistical test report

4.4.1 The choice to use non-parametric tests

The decision to run non-parametric tests on this data was because the data did not meet parametric assumptions. Firstly, the proportion of participants in each condition was disproportionate: the sample data measured 69 participants who were divided as 17 non-tutored and 52 tutored (25% to 75% ratio). Secondly, out of the 16 groups of scores being compared (4 x non-tutored Classical Proactive Composing (PC), Proactive using Stimulus (PS), Evaluating the Product (EP), Interactive Composing (IC), 4 x non-tutored Experimental PC, PS, EP, IC, 4 x tutored Classical PC, PS, EP, IC and 4 x tutored Experimental PC, PS, EP, IC) some were not normally distributed and thirdly, within these groups some did not meet the requirements for equality of variance.

Tests of normality on the two independent variables tutored and non-tutored and stimulus produced results that indicated that the data were not normally distributed. Details of the Kolmogorov-Smirnov statistic revealed that the non-tutored variable suggested a violation of the assumption of normality with a statistically significant result of $p < .05$ (p = <.001). The tutored variable had a non-significant result of $p > .05$ ($p = .200$) indicating no violation of the assumptions of normality. When exploring the stimulus scores (Abrahamsen, Chopin and Cage), Kolmogorov-Smirnov test results found that Experimental stimulus Abrahamsen and Classical stimulus Chopin's scores were normally distributed with a non-significant result of p>.05 ($p = .200$) whilst Experimental stimulus Cage revealed a significant result of ($p = .010$). Attempts to normalise the data using Log 10 and Square Root were unsuccessful and therefore it was decided that non-parametric tests would be appropriate.

4.4.2 Identifying the appropriate non-parametric tests for the data

Tests were chosen based on the needs of the research questions, and with considerations of the study design. These were that the same participants had undergone the same different conditions in that they were subjected to different musical stimuli three times. Non-parametric tests conducted were a Mann Witney U test , Wilcoxon sign rank test and Friedman's ANOVA. A Mann-Whitney rank-sum test was performed as both sets of participants (non-tutored and tutored) experienced 2 types of composing condition (Experimental and Classical). As the Mann-Whitney test relies on scores being ranked from lowest to highest, the group with the lowest or highest mean rank will be the group with the most low or high scores. The purpose for this data set was to see which group had the most number of high scores. An effect size (r) was also calculated using :

$r = z$ score divided by the square root of N (total number of participants in the study which is 69). Wilcoxon sign rank test was used to look at the differences between classical and experimental musical stimuli and Friedman's test for testing differences between conditions when there are two or more conditions that subjects have participated and produced scores for was also conducted. This test is also used when assumptions have been violated as a non-parametric equivalent to a parametric repeated measures ANOVA test.

The results of non-parametric tests revealed significant differences between tutored and non-tutored participants within all areas of the Sound of Intent (Composing) scoring system. Parametric test results are provided in Appendix Part 2.

4.4.3 Explanation of variables TNT and Stimulus

Mann-Witney, Friedman's ANOVA and Wilcoxon sign rank tests were run on the data to explore the two areas of analysis for this study: the impact of contrasting musical stimuli and the impact of levels of being tutored and non-tutored on children's compositional products, as scored within the SoI (Composing) framework. The variables are referred to as 'stimulus' and 'TNT' (tutored or non-tutored). Each of the four research questions uses a different area of the SoI (Composing) scoring system. Research question 1 uses the area of Proactive Composing (PC) (individual participant contributions to creative products) and research question 2 uses scoring area Proactive using the Stimulus (PS) (children's use of stimulus material when composing). Research question 3 uses scoring area Evaluating the Product (EP) (structure and content of creative products) and research question 4 uses scoring area Interactive Composing (IC) (collaboration between participants during group composing).

For the purpose of conducting tests on the data variables needed to be identified within SPSS. Within the dependent variable stimulus, Classical and Experimental stimuli were identified as Classical'(Class)' or Adjusted Experimental'(Adj.Exp') for each of Proactive Composing (PC), Proactive using the Stimulus (PS), Evaluating the Product (EP) and Interactive Composing (IC) scoring categories.

All of the research questions are considered within the effect of the two variables, (stimulus and TNT) in order to answer them explicitly.

4.4.4 Main effects of the stimulus and tutored/non-tutored (TNT) variables

The overall effects of the variables are explored first. Mann-Witney independent samples tests revealed that across all SoI (Composing) scores, regardless of scoring category, the variable TNT was statistically significantly different between tutored and (mean rank = 102.68) and non-tutored (mean rank = 58.65) participants, U = 640.000, z = -5.575, p < .001. Non-tutored participants scored higher overall, indicating that whether participants received instrumental lessons had a significant impact on their SoI (Composing) scores.

The variable stimulus was not significantly different between Western classical (mean rank = 65.41) and experimental (mean rank = 73.59) musical stimuli, U = 2663.00, z = 1.203, p = .229. This result indicates that across all participants and both types of musical stimulus, it did not have a significant impact upon participants SoI (Composing) scores.

4.4.5 Results of Mann Witney tests of mean ranking

The results of the main effects of variables are then explored further, in order to look at differences within the four areas of the SoI (Scoring) system in relation to tutored and non-tutored participants using Mann Witney tests of mean ranking. This was performed as both sets of participants (non-tutored and tutored) experienced two types of composing condition (Experimental and Classical).

Tables 4 and 5 below show the Mean Rank for tutored and non-tutored participants for all 4 scoring categories within each musical stimulus. Table 3 below gives the mean rank for the classical stimulus within SoI (Composing) categories, followed by table 4, which gives the mean rank for experimental stimuli within SoI (Composing) categories.

Scoring Category	Tutored / Non-Tutored	Mean Rank
PC Classical	T	30.21
	N-T	49.65
PS Classical	T	30.89
	N-T	47.56
EP Classical	T	30.13
	N-T	49.88
IC Classical	T	28.98
	N-T	53.41

Table 3: Mean rankings for the classical stimulus within the SoI (Composing) scoring categories

Scoring Category	Tutored / Non-Tutored	Mean Rank
PC Experimental	T	30.27
	N-T	49.47
PS Experimental	T	32.09
	N-T	43.91
EP Experimental	T	31.51
	N-T	45.68
IC Experimental	T	30.74
	N-T	48.03

Table 4: Mean rankings for experimental stimuli within the SoI (Composing) scoring categories

A more in-depth exploration of the results of the statistical tests will now be presented within the context of the research questions.

4.5 Results of applied musicological analysis from non-parametric tests

4.5.1 Research Question 1:

This question uses data from the ***Proactive with Composing – PC –*** *criteria*

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing traditional Western classical or experimental musical stimuli on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

There was a significant main effect of the variable TNT on the Proactive Composing (PC) scores, for both classical and experimental stimuli responses. When responding to the classical stimulus non-tutored participants (mean rank = 49.65) scored significantly higher than tutored (mean rank = 30.21), $U = 193.000$, $z = -3.504$, $p = .001$. When responding to experimental music non-tutored participants (mean rank = 49.47) scored significantly higher than tutored participants (mean rank = 30.27), $U = 196.000$, $z = -3.438$, $p = .001$.

This indicates that whether children were tutored or non-tutored had a significant impact upon the coherence of their individual contributions to group composing.

There was no significant difference between the SoI (Composing) Proactive Composing scores of the experimental and classical musical stimuli (negative ranks 29, sum of ranks 1125.50, positive ranks 39, sum of ranks 1220.50), z = -.290, p = .771. This indicates that different musical stimuli did not have an impact on children's individual contributions during group composing and is shown in table 5 below.

SoI (Composing) scoring category			Sum of ranks
PCexpm - PCclass	Negative Ranks	29	1125.5
	Positive Ranks	39	1220.5
	Ties	1	
	Total	69	
	Z	-0.29	
	Asymp. Sig. (2-tailed)	0.771	

Table 5: Comparison of Proactive Composing scores from experimental stimuli with Proactive Composing scores from classical stimuli across all participants

When comparing experimental and classical non-tutored Proactive Composing scores there was no statistical significance (negative ranks 7, sum of ranks 81, positive ranks 9, sum of ranks 55, ties 1), z = -.674, p = .501. This indicates that non-tutored participants individual contributions to group composing were not significantly affected by whether the musical stimuli were traditional Western classical or experimental. The result for non-tutored participants is shown below in table 6.

SoI (Composing)			
Scoring category	Ranks	N	Sum of Ranks
PCexpm - PCclass	Negative Ranks	7	81
	Positive Ranks	9	55
	Ties	1	
	Total	17	
	Z	-.674	
	Asymp. Sig. (2-tailed)	0.501	

Table 6: Comparison of Proactive Composing scores from experimental stimuli with Proactive Composing scores from classical stimuli across non-tutored participants

When comparing SoI (Composing) Proactive Composing experimental and classical musical stimuli scores for tutored participants no significance occurred (negative ranks 22, sum of ranks 618.000, positive ranks 30, sum of ranks 76.000, ties 1), z = -.647, p = .518. This indicates that tutored participants individual contributions to group composing were not significantly affected by whether the musical stimuli were traditional Western classical or experimental. The result for tutored participants is shown below in table 7.

SoI (Composing)			
scoring category	Ranks	N	Sum of Ranks
PSexpm - PSclass	Negative Ranks	22	618
	Positive Ranks	30	760
	Ties	0	
	Total	52	
	Z	-.647	
	Asymp. Sig. (2-tailed)	0.518	

Table 7: Comparison of Proactive Composing scores from experimental stimuli with Proactive Composing scores from classical stimuli across tutored participants

The stimulus variable therefore indicated no significant impact upon tutored or non-tutored participants Proactive Composing SoI (Composing) scores. This indicates that types of musical stimuli did not impact upon the individual coherence of children’s individual compositional contributions.

4.5.2 Research Question 2:

This question uses data from the ***Proactive with the Stimulus – PS*** *– criteria*

In 9–11-year-old children's compositions, improvised in small groups, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons and of experiencing traditional Western Classical and Experimental musical stimuli on children's use of stimulus material?

There was a significant effect of the variable TNT on Proactive using the Stimulus (PS) SoI (Composing) scores, in response to both classical and experimental musical stimuli. In response to classical music non-tutored participants (mean rank = 47.56) scored significantly higher than tutored participants (mean rank = 30.89), U = 228.500, z = -3.042, p = .002. This indicates that whether participants were tutored or non-tutored did have an impact upon their use of stimulus material during group composing.

In response to experimental music non-tutored participants (mean rank = 43.91) scored significantly higher than tutored participants (mean rank = 30.27), U = 290.500, z = -2.116, p = .034, within the SoI (Composing) Proactive using the Stimulus scoring category. This indicates that whether children were tutored or non-tutored did have an impact upon their use of stimulus material during group composing.

There was no significant difference between SoI (Composing) Proactive using the Stimulus scores for experimental and classical stimuli (negative ranks 22, sum of ranks 702.000, positive ranks 40, sum of ranks 1251.000, ties 7), z = -1.926, p = .054, however this result is below .10 and therefore can be described as approaching significance. This is shown in table 8 below.

SoI (Composing) scoring category			Sum of ranks
PSexpm - PSclass	Negative Ranks	22	702
	Positive Ranks	40	1251
	Ties	7	
	Total	69	
	Z	-1.926	
	Asymp. Sig. (2-tailed)	0.054	

Table 8: Comparison of Proactive using the Stimulus scores from experimental stimuli with Proactive using the Stimulus scores from classical stimuli across all participants

As table 8 demonstrates, the comparison of Proactive using the Stimulus SoI (Composing) scores across all participants is approaching statistical significance (p= .054) and therefore suggests that whether or not musical stimuli were traditional Western classical or experimental did affect how participants used stimulus material during group composing, just not at a significant level.

There was no statistical significance within non-tutored participants Proactive using the Stimulus scores between experimental and classical musical stimuli (negative ranks 9, sum of ranks 94.5, positive ranks 8, sum of ranks 58.50), z = -.853, p = .394, indicating that non-tutored participants use of stimulus material was not affected by different types of musical stimuli. The non-tutored participants result is shown in table 9 below.

SoI (Composing) scoring category	Ranks	N	Sum of Ranks
PSexpm - PSclass	Negative Ranks	9	94.5
	Positive Ranks	8	58.5
	Ties	0	
	Total	17	
	Z	-.853	
	Asymp. Sig. (2-tailed)	0.394	

Table 9: Comparison of Proactive using the Stimulus scores from experimental stimuli with Proactive using the Stimulus scores from classical stimuli across all non-tutored participants

There was a statistical significance within tutored participants Proactive using the Stimulus scores between experimental and classical musical stimuli (negative ranks 13, sum of ranks 265.50, positive ranks 32, sum of ranks 769.50), $z = -2.848$, $p = .004$, indicating that tutored participants use of stimulus material was influenced when responding to different musical stimuli. The tutored participants result is shown in table 10 below.

SoI (Composing) scoring category	Ranks	N	Sum of Ranks
PSexpm - PSclass	Negative Ranks	13	265.5
	Positive Ranks	32	769.5
	Ties	7	
	Total	52	
	Z	-2.848	
	Asymp. Sig. (2-tailed)	.004	

Table 10: Comparison of Proactive using the Stimulus scores from experimental stimuli with Proactive using the Stimulus scores from classical stimuli across tutored participants

The stimulus variable indicates that tutored participants use of stimulus material during group composing was significantly affected by whether or not musical stimuli were traditional Western classical or experimental, whereas non-tutored participants use of stimulus material was not significantly impacted by the type of musical stimuli.

<u>*4.5.3 Research Question 3:*</u>

This question will use data from the ***Evaluating the Product – EP -*** *criteria.*

Is there an impact, and, if so, what is the nature of the impact of experiencing experimental or traditional Western classical music and of receiving or not receiving instrumental lessons, on the structure and content of 9–11-year-old children's compositions, improvised in small groups?

There was a significant effect of the variable TNT on SoI (Composing) Evaluating the Product (EP) scores in response to both types of musical stimuli. In response to the classical stimulus non-tutored participants (mean rank = 49.88) scored significantly higher than tutored participants (mean rank = 30.13), U = 189.000, z = -3.529, p < 001. In response to experimental musical stimuli non-tutored participants (mean rank = 45.68) scored significantly higher than tutored participants (mean rank = 31.51), U = 260.500, z = -2.530, p = .011. This indicates that whether or not participants received instrumental lessons did have an impact upon the structure and content of their group compositions as non-tutored participants scored higher than tutored within the EP SoI (Composing) category.

There was no significant difference between experimental and classical musical stimuli within the SoI (Composing) Evaluating the Product scores (negative ranks 35, sum of ranks 1114.00, positive ranks 34, sum of ranks 1301.00), z = -.559, p = .576, indicating that the structure and content of participants compositions was not affected when responding to different musical stimuli. This is shown in table 11 below.

SoI (Composing) scoring category			Sum of ranks
EPexpm - EPclass	Negative Ranks	35	1114
	Positive Ranks	34	1301
	Ties	0	
	Total	69	
	Z	-.559b	
	Asymp. Sig. (2-tailed)	0.576	

Table 11: Comparison of Evaluating the Product scores from experimental stimuli with Evaluating the Product scores from classical stimuli across all participants

There was no significant difference between experimental and classical musical stimuli within Evaluating the Product scores for non-tutored participants (negative ranks 11, sum 101, positive ranks 6, sum of ranks 52.000), z = -1.160, p = .246, indicating that non-tutored participants compositional structure and content was not affected when responding to different musical stimuli. This is shown in table 12 below.

SoI (Composing) scoring category	Ranks	N	Sum of Ranks
EPexpm - EPclass	Negative Ranks	11	101
	Positive Ranks	6	52
	Ties	0	
	Total	17	
	Z	-1.160b	
	Asymp. Sig. (2-tailed)	0.246	

Table 12: Comparison of Evaluating the Product scores from experimental stimuli with Evaluating the Product scores from classical stimuli across non-tutored participants

There was no significant difference between experimental and classical musical stimuli within Evaluating the Product scores for tutored participants (negative ranks 24, sum of ranks 554.00, positive ranks 28, sum of ranks 824.00), z = -1.230, p = .219, indicating that tutored participants compositional structure and content was not impacted when responding to different musical stimuli. This is shown in table 13 below.

SoI (Composing) scoring category	Ranks	N	Sum of Ranks
PSexpm - PSclass	Negative Ranks	24	554
	Positive Ranks	28	824
	Ties	0	
	Total	52	
	Z	-1.230c	
	Asymp. Sig. (2-tailed)	.219	

Table 13: Comparison of Evaluating the Product scores from experimental stimuli with Evaluating the Product scores from classical stimuli across all tutored participants

From these results it can be deduced that the structure and content of all participants compositions was not significantly affected by whether musical stimuli were traditional Western classical or experimental.

4.5.4 Research Question 4:

This question uses data from the ***Interactive with Composing – IC –*** *criteria.*

Is there an impact, and, if so, what is the nature of the impact, of experiencing experimental or traditional Western classical music and of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in small groups?

There was a significant main effect of the variable TNT on SoI (Composing) Interactive with Composing (IC) scores in response to both classical and experimental musical stimuli. In response to the classical stimulus, non-tutored participants (mean rank = 53.41) scored significantly higher than tutored participants (mean rank = 28.98), U = 129.000, z = -4.368, p < .001. In response to the experimental stimuli within the Interactive Composing (IC) category non-tutored participants (mean rank = 48.03) scored significantly higher than tutored participants (mean rank = 30.74), U = 220.500, z = -3.086, p = .002.

These results indicate that collaboration between participants during group composing tasks was impacted by whether or not participants received instrumental lessons, with non-tutored participants scoring higher than tutored.

There was a significant difference between experimental and classical musical stimuli within SoI (Composing) Interactive Composing scores (negative ranks 23 sum 699.50, positive ranks 45, sum of ranks 1646.50), z = -2.894, p = .004, with non-tutored participants scoring higher for classical and experimental musical stimuli than tutored. This indicates that participants' capacity to compose in groups was influenced not only by whether or not they were tutored or non-tutored, but also by different types of musical stimuli. This is shown in table 14 below.

SoI (Composing) scoring category			Sum of ranks
ICexpm - ICclass	Negative Ranks	23	699.5
	Positive Ranks	45	1646.5
	Ties	1	
	Total	69	
	Z	-2.894	
	Asymp. Sig. (2-tailed)	0.004	

Table 14: Comparison of Interactive Composing (IC) scores from experimental stimuli with Interactive Composing scores from classical stimuli across all participants

There was no significant difference within non-tutored participants Interactive Composing scores for experimental and classical musical stimuli (negative ranks 9, sum of ranks 82.000, positive ranks 8, sum 71.00), z = -.260, p = .795, indicating that non-tutored participants capacity to compose together was not affected when responding to different musical stimuli. This is shown in table 15 below.

SoI (Composing) scoring category	Ranks	N	Sum of Ranks
PSexpm - PSclass	Negative Ranks	9	82
	Positive Ranks	8	71
	Ties	0	
	Total	17	
	Z	-1.160	
	Asymp. Sig. (2-tailed)	0.246	

Table 15: Comparison of Interactive Composing scores from experimental stimuli with Interactive Composing scores from classical stimuli across non-tutored participants

There was a significant difference within tutored participants Interactive Composing scores for experimental and classical musical stimuli (negative ranks

14, sum of ranks 288.00, positive ranks 37, sum of ranks 1038.00), $z = -3.516$, $p = .000$, indicating that tutored participants capacity to collaborate during composing was significantly affected when responding to different musical stimuli. This is shown in table 16 below. Results showed that tutored participants scored significantly higher in response to experimental musical stimuli than they did to the classical stimulus.

SoI (Composing) scoring category	Ranks	N	Sum of Ranks
PSexpm - PSclass	Negative Ranks	14	288
	Positive Ranks	37	1038
	Ties	1	
	Total	52	
	Z	-3.516	
	Asymp. Sig. (2-tailed)	0.000	

Table 16: Comparison of Interactive Composing scores from experimental stimuli with Interactive Composing scores from classical stimuli across all tutored participants

4.5.5 Summarising the results of the research questions

Tables 4 and 5 demonstrated that overall non-tutored participants achieved a greater number of high scores within all four areas of the SoI (Composing) scoring system for both types of musical stimuli, than tutored participants. This initial finding was further explored within the context of the research questions and the results are summarised in tables 18 and 19 below.

SoI (Composing) scoring category	Variable: significance of being tutored or non-tutored (TNT) on each stimulus from Mann Witney U test	
	Classical stimulus	Experimental stimuli
Proactive Composing	.000	.001
Proactive using the Stimulus	.002	.034
Evaluating the Product	.000	.011
Interactive Composing	.000	.002

Table 17: Significance of the TNT variable on each SoI (Composing) scoring category

Table 17 above demonstrates that receiving or not receiving instrumental lessons can be identified as having a significant impact upon children's compositional coherence (research question 1, SoI (Composing) PC, $p <= .05$), their use of stimulus material when composing (research question 2, SoI (Composing) PS, $p <= .05$), the structure and content of their compositions (research question 3, SoI (Composing) EP, $p <= .05$) and their capacity to compose with others (research question 4, SoI (Composing) IC, $p <= .05$), across both musical stimuli. Thus, in all eight areas of the SoI (Composing) scoring system that were tested the variable of TNT demonstrates a statistical significance., in that non-tutored participants scored consistently higher than tutored participants.

Table 18 below demonstrates the overall impact of the stimulus variable upon SoI (Composing) scores within each category of the scoring system.

SoI (Composing) scoring category	Significance of stimulus variable on SoI (Composing) scores
Proactive Composing	.501
Proactive using the Stimulus	.054
Evaluating the Product	.576
Interactive Composing	.004

Table 18: Significance of the stimulus variable upon SoI *(Composing) scoring categories*

The results (shown in table 18 above) indicate that the variable of stimulus did not have a significant impact upon children's individual musical coherence (research question 1, SoI (Composing) PC) or the structure and content of children's compositions (research question 3, SoI (Composing) EP) as p = > .05. The stimulus variable indicates a greater impact on children's use of stimulus material (research question 2, SoI (Composing), PS, p = .054) than their individual coherence or the structure and content, as the p value is less than 1, but that this impact did not occur at a statistically significant level. The stimulus variable did have a significant impact upon children's capacity to compose with others (research question 4, SoI (Composing) IC, p = .004).

This was explored further to investigate any interactions that may be occurring between types of stimulus, whether participants were tutored or non-tutored and scoring categories, and which is summarised in table 19 below.

SoI (Composing) scoring category	**Non-Tutored (experimental and classical stimuli)**	**Tutored (experimental and classical stimuli)**
Proactive Composing	.501	.518
Proactive using the Stimulus	.394	.004
Evaluating the Product	.246	.219
Interactive Composing	.795	.000

Table 19: Impact of stimuli between tutored and non-tutored participants

As is shown within table 19 above, tutored participants demonstrate a greater impact from stimulus than non-tutored, within Proactive using the Stimulus and Interactive Composing SoI (Composing) scores. In terms of the impact of different stimuli on tutored and non-tutored participants, Figure 20 below shows these variations between groups.

Friedman repeated measures test was conducted to reveal the difference (if any) between the four SoI (Composing) scoring categories (PC, PS, EP, IC) and see if scores were increasing or decreasing across the categories.

Figure 20 below shows the differences in scores for tutored and non-tutored participants for each musical stimulus and all 8 areas of scoring.

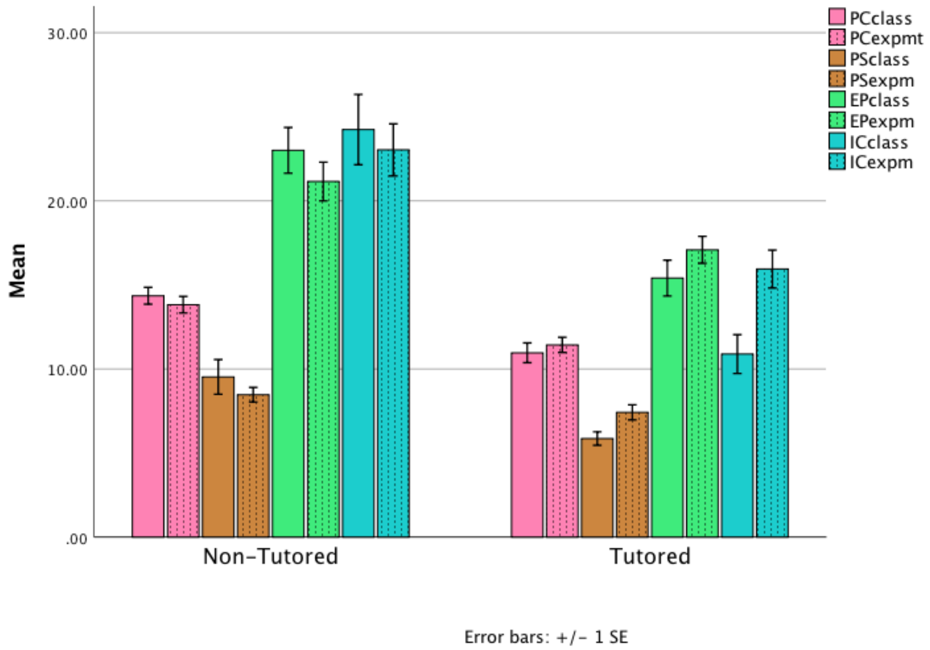


Fig. 20: Non-tutored and tutored SoI (Composing) scores for both musical stimuli across each scoring category

Note for Figure 20: class = classical, expt = experimental, PC=Proactive Composing, PS=Proactive using the Stimulus, EP=Evaluating the Product, IC=Interactive Composing

Figure 20 above shows that non-tutored participants scores decrease each time for experimental musical stimuli, whereas tutored participant scores increase. This indicates a trend within the data that could be suggestive of an interaction between levels of being tutored or non-tutored and types of musical stimuli.

4.6 Results of Friedman's ANOVA

Having used the Mann Witney test to explore the impact of whether or not participants were tutored or non-tutored and the impact of Western classical and experimental musical stimuli on children's compositional responses, a Friedman's ANOVA was conducted to explore the differences in scores. Within the classical stimulus scores were found to be significantly different between non-tutored (X^2_F (3) = 38.153, $p < .001$) and tutored (X^2_F (3) = 88.972, $p < .001$) participants scores in each SoI (Composing) scoring category, with non-tutored participants scoring higher in every case. Within the experimental stimulus, there was also a significant difference between non-tutored (X^2_F (3) = 43.615, p < .001) and tutored (X^2_F (3) = 90.640, $p < .001$) participants scores within each area of the SoI (Composing) scoring categories, with non-tutored participants scoring higher in every case. Test results were also used to calculate the percentage differences in mean scores for both stimuli and both groups of participants in each scoring category of the SoI (Composing) framework. This is shown in table 20 below.

SoI (Composing) Scoring Category	Tutored Mean	Non-Tutored Mean	% difference in scores
Proactive Composing Classical	10.961	14.352	N-T scored 40% higher
Proactive using Stimulus Classical	5.865	9.529	N-T scored 58% higher
Evaluating the Product Classical	15.404	23.000	N-T scored 53% higher
Interactive Composing Classical	10.885	24.235	N-T scored 118% higher
Proactive Composing Experimental	11.433	13.824	N-T scored 27% higher
Proactive using Stimulus Experimental	7.423	8.471	N-T scored 14% higher
Evaluating the Product Experimental	17.087	21.147	N-T scored 24% higher
Interactive Composing Experimental	15.942	23.029	N-T scored 23% higher

Table 20: Mean score for tutored and non-tutored participants within each SoI (Composing) scoring category for experimental and Western classical musical stimuli

This table shows the largest difference in scores between tutored and non-tutored participants to be in the Interactive Composing SoI (Composing) scoring category, when responding to the Western classical stimulus, and the smallest difference in scores to be in the Proactive using the Stimulus SoI (Composing) scoring category when responding to the experimental stimuli.

An overall percentage difference (not divided between stimuli) between tutored and non-tutored scores is shown in table 21 below. The % indicates the amount more that non-tutored participants scored compared than tutored participants in all categories of the SoI (Composing) framework, disregarding different musical stimuli.

SoI (Composing) Scoring category	**% age difference between non-tutored participants to tutored participants**
Proactive Composing	33.5%
Proactive using the Stimulus	36%
Evaluating the Product	38.5%
Interactive Composing	81%

Table 21: Percentage difference between non-tutored and tutored participants SoI (Composing) scores

It is evident from table 21 above that the area of biggest difference was within the Interactive Composing (IC) SoI (Composing) scoring category, which was also the only scoring category to have a statistically significant result in response to both TNT and stimulus variables.

4.6.1 Friedman's test for differences between conditions and the calculation of effect sizes on the data

Friedman's test for testing differences between conditions when there are two or more conditions that subjects have participated and produced scores for was conducted in addition to Mann Witney. This test is also used when assumptions of normality have been violated. Again, non-tutored mean ranks were higher across all four scoring categories in both stimuli than tutored. The effect sizes calculated indicated a small effect (below the .30 criterion) (Cohen, 1998, 1992) in the Proactive using the Stimulus (r = -.25) and Evaluating the Product (r = -.30) Experimental scoring categories. This indicates that in these two scoring categories the impact of being tutored or non-tutored was small.

Classical categories Proactive Composing (r = -.42), Proactive using the Stimulus (r = -.37) and Evaluating the Product (r = -.42) and Experimental category Proactive Composing (r = -.41) showed a medium to large effect size (above the .30 criterion), indicating that within these four scoring categories the impact of being tutored or non-tutored was similar and somewhat significant. SoI (Composing) scoring category Interactive Composing within the classical stimulus (r = -.53) and experimental stimuli (r = -.97) showed the large effect sizes as they were above the .50 threshold, indicating that the effects of being tutored or non-tutored upon participant collaboration was significant.

In summary, the smaller the effect size the smaller the impact from the TNT variable, and although significant differences occurred within all scoring areas between tutored and non-tutored participants (see previous results), the size of these differences varied within the SoI (Composing) scoring categories.

4.7 Summary of results

Overall, these results indicate that whether or not children received instrumental lessons significantly affected all aspects of their composing, as measured within the SoI (Composing) framework. In every area of scoring non-tutored participants scored higher than tutored participants. Additionally, different types of musical stimuli significantly impacted upon children's collaboration with each other during group composing.

As non-parametric tests were used on this data it was not possible to explore interactions between variables, however the results of parametric tests that were also run on the data were found to strongly concur with the non-parametric results reported (see Appendix Part 2 for parametric results).

Chapter 5 - Applied Musicological Analysis Part II (Qualitative)

5.1 Introduction

From the quantitative report it can be deduced that participant levels of being tutored or non-tutored impacts upon the aspects of compositional processes as measured within the SoI (Composing) model, and that levels of being tutored or non-tutored, when occurring with different musical stimuli affected styles of collaboration and the use of stimulus material. The results of quantitative analysis were counter-intuitive, as it was expected that a difference in compositional responses to Experimental and Western classical stimuli would occur, which did not within this experimental study. The reasons for this are explored using the video data collected, the strategy for which will now be explained.

5.2 Strategy for Case Studies

The results of statistical tests were used to inform the qualitative approach within this research and analysis was conducted in the form of case studies. Due to the large amount of data collected (270 videos) it was only possible to use a sample of the data for in depth analysis. Thirty compositional products were analysed in total and the non-selected examples can be found in the appendix Part 3. All five non-tutored groups were used, along with five selected tutored groups, with each group providing three compositions. From these 30 products, 12 video examples of compositional products were selected: six of each tutored and non-tutored participant groups. These 12 examples were then paired according to stimulus (classical or experimental) and scoring level (low, medium and high) to create six pairs of comparable case studies. Scoring levels were difficult to allocate as in some cases certain participants scored high whilst others scored low within the same example. Each group produced three compositions in response to experimental music by John Cage, classical music by Frederic Chopin and experimental music by Hans Abrahamsen. Gender was not a variable within this experiment, so the chosen examples and pairings are a random mix of male and female groups.

The analysis of these videos is now presented using notation examples from the musical products to explicitly demonstrate the findings and indicating how zygonic theory supports and guides the development of causal explanations for the creative process of composing. Research questions are answered in two parts in order to address each variable (TNT and Stimulus) separately. This applied musicological approach is summarised in the Figure 21 below:

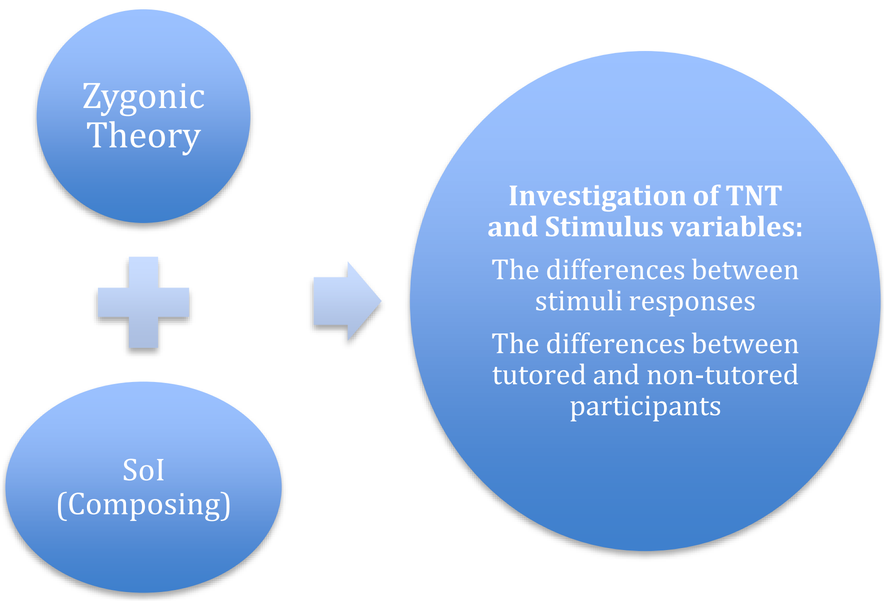


Fig. 21: Summary of applied musicological approach for case study analysis

To simplify the process of analysis specific aspects of zygonic theory were selected for application:

1. The identification of **primary zygonic relationships** (the use of repeated pitch and rhythm)

2. The identification of **secondary zygonic relationships** (whereby notes are repeated but not directly after each other and thus deemed to derive from one another; again, this can be applied to rhythm and pitch).

3. The identification of **inter-onset intervals** (the lengths of time between notes' inceptions) and how this contributes to overall structure and seeks to explain 'sets' of pitch and rhythm.

4. The identification of **pitch networks** as notes within a group of three or more, that most likely derive from others previously heard, but which do not necessarily occur in exact imitation. As many of the groups used non-pitched percussion, the idea of **rhythmic networks** was also used.

Given the musical simplicity of many of the musical creations this was felt to provide sufficient information in relation to the research questions and provide means for a close examination of musical material with regard to the theoretical principles. SoI (Composing) numerical scores are presented for individual participants.

The pairing of case studies is shown in table 22 below:

Case Study	**Information for Case Study Comparison**	Page
1	**High scoring Tutored Classical versus High Scoring Non-Tutored Classical**	181
2	**Medium Scoring Tutored Classical versus Medium Scoring Non-Tutored Classical**	230
3	**Low Scoring Tutored Classical versus Low Scoring Non-Tutored classical**	273
4	**High Scoring Tutored Experimental versus High Scoring Non-Tutored Experimental**	310
5	**Medium Scoring Tutored Experimental versus Medium Scoring Non-Tutored Experimental**	360
6	**Low Scoring Tutored Experimental versus Low Scoring Non-Tutored Experimental**	401

Table 22: Titles and page numbers for case studies

The order of explanation first gives the seating position of the groups during performance, the complete notated compositional product and a descriptive 'analytical overview' with applied musicological analysis of compositional product sections. Following this, the breakdown of Sounds of Intent (Composing) analysis is provided along with answers to each research question.

5.3 Case Studies

5.3.1 Case Study 1 High Scoring Classical

Part 1: Tutored (Performance length: 35 seconds)

Diagram 1 shows the seating position of tutored participants for case study 1:

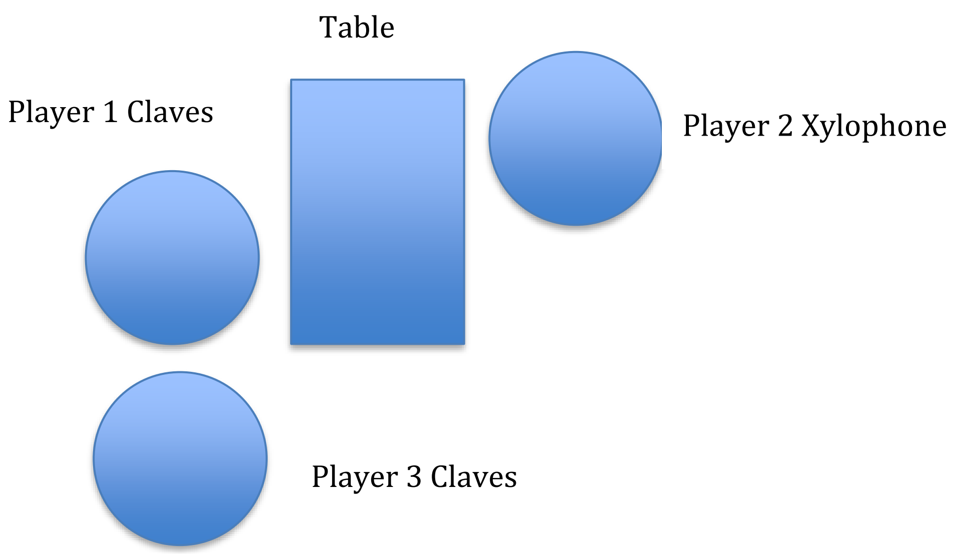
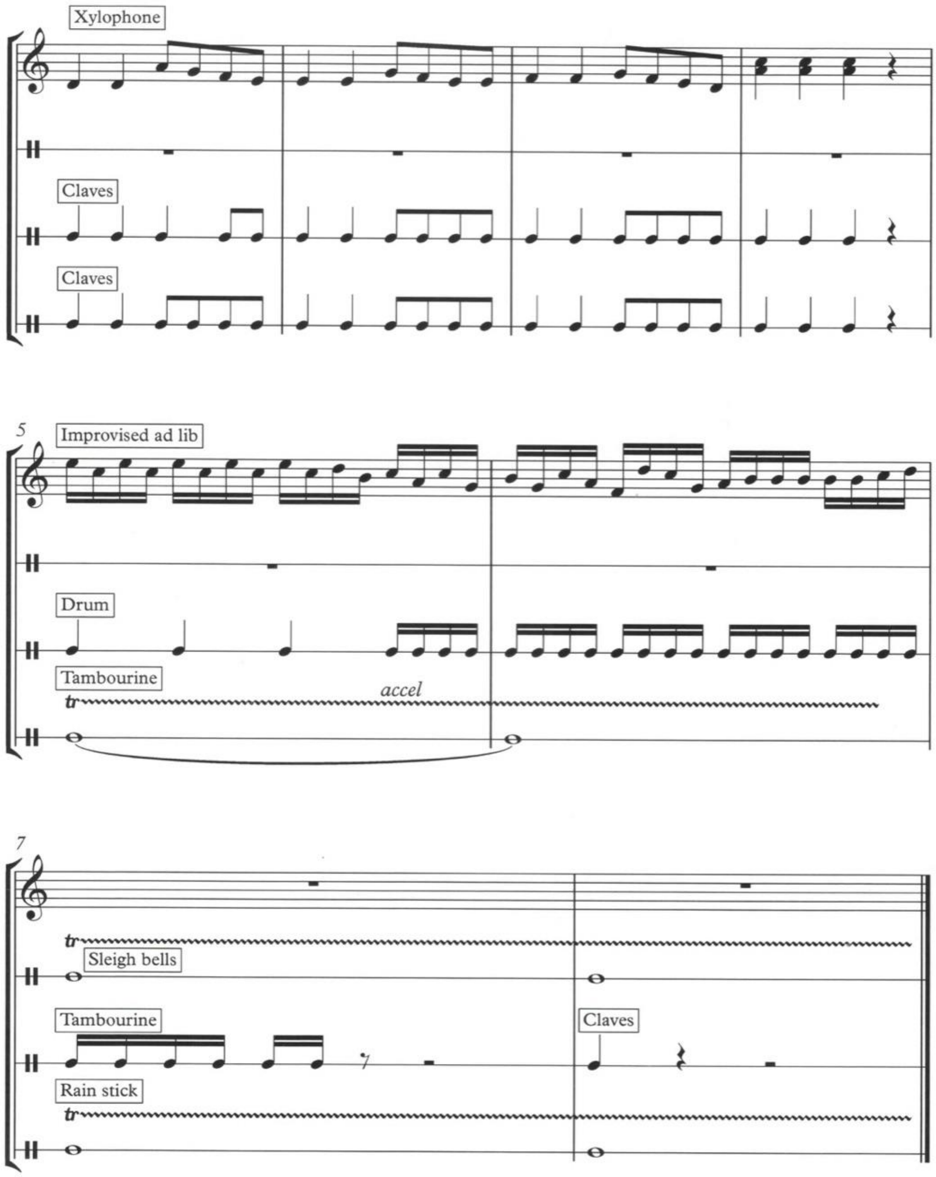


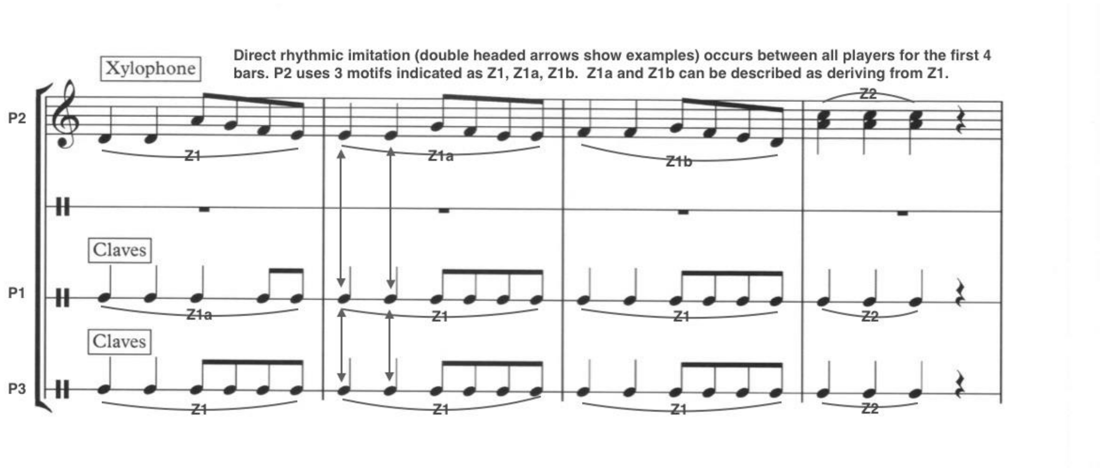
Diagram 1 Positioning of participants Case Study 1 tutored



Complete Compositional Product for Case Study 1 tutored

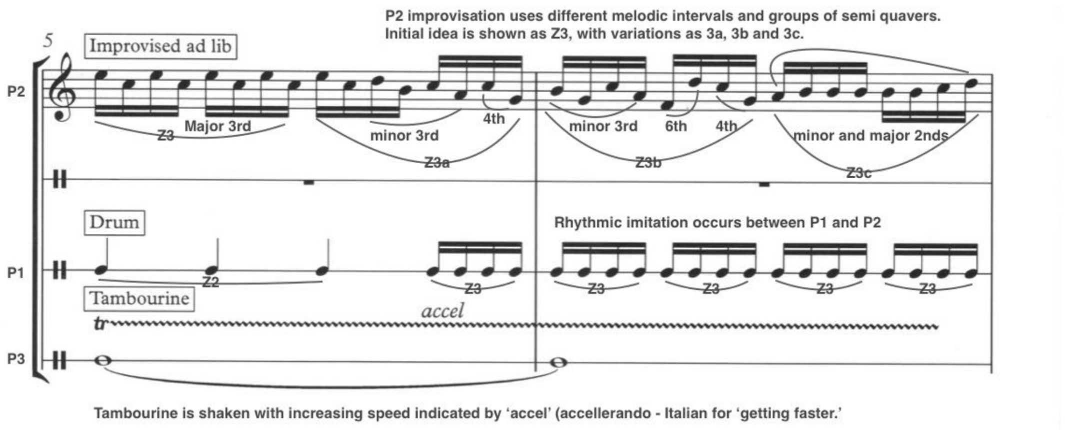
<u>Analytical Overview for Case Study 1 tutored</u>

The initial section of this piece (bars 1-4) demonstrates imitative rhythmic playing between all participants. The opening xylophone part is contained within a melodic interval of a minor 7th between pitches D and C above. In bar 1 the xylophone uses a perfect 5th melodic interval played between pitches D-A followed by a descending pattern of quavers to the pitch E – indicated as ‘Z1’. The pattern is repeated in bar 2 over a minor 3rd interval between E and G – indicated as ‘Z1a’. Z1a is used as a descriptor to identify that bar 2 is heard as deriving from Z1. This is an example of secondary zygonic relationships of pitch. In bar 3 the melodic interval is smaller again, using a major 2nd, and the final repetition of descending quavers returns the music to the opening pitch D. This is indicated as ‘Z1b’ to identify a further derivation of pitch from the original phrase. Primary zygonic relationships of rhythm are evident in this part and are directly imitated by the other players. The phrase concludes with three minor 3rd chords between pitches A and C and indicated as ‘Z2’ as a new musical idea is stated, that does not, aside from the use of the A pitch, derive from the previous patterns. Bar 4 does succeed in providing logical musical closure to the phrase.



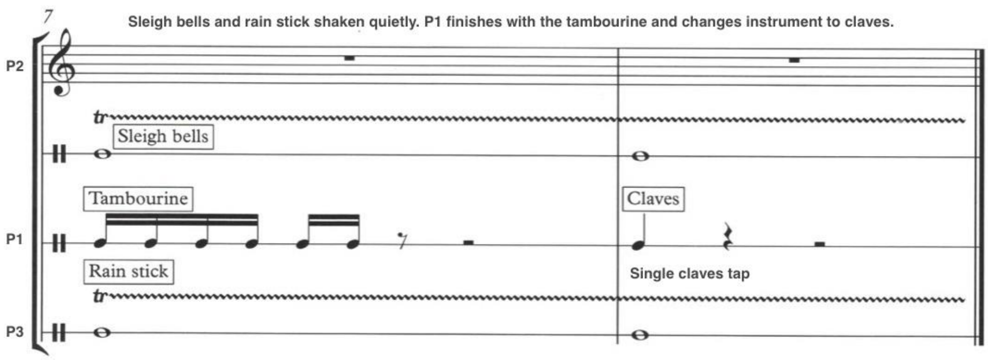
Compositional Product section showing bars 1-4 for Case Study 1 tutored

Following this section players 1 and 3 change instruments to tambourine and hand drum. Player 2 improvises on the xylophone playing semi-quavers over major (E to C below) and minor 3rds (B to G below) in bar 5, followed by various pitches between F and D above in bar 6. These musical events are shown below in the next compositional product section as Z3, Z3a, Z3b and Z3c to identify that idea a, b and c derive from Z3, both in the use of repeated references to the same group of pitches (for example, each semi-quaver quadruplet apart from the 7th uses the pitch C) and in the consistent rhythm. Player 1 on hand drum begins rhythmically imitating player 2 at the end of bar 5, which is also indicated as Z3.



Compositional Product Section showing xylophone improvisation and hand drum rhythmic imitation for Case Study 1 tutored

The xylophone abruptly ends on an upward movement of semi-quavers, which is as a result of the participant suddenly deciding to play sleigh bells. The first indication of dynamic awareness is shown as the group fade out their instruments to pianissimo through bars 7-8. The final sound is a single tap on a pair of claves, played very quietly and with hesitation.

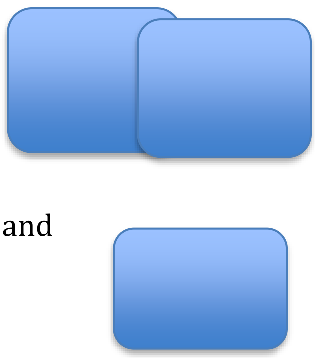


Compositional Product Section showing final 2 bars of piece for Case Study 1 tutored

Part 2: Non-Tutored High Scoring Classical Stimulus

Participants used voice (Player 1 and Player 3 singing with a microphone), cymbals and xylophone (Player 2 plays both).

Player 1 Vocals



Player 2 Vocals

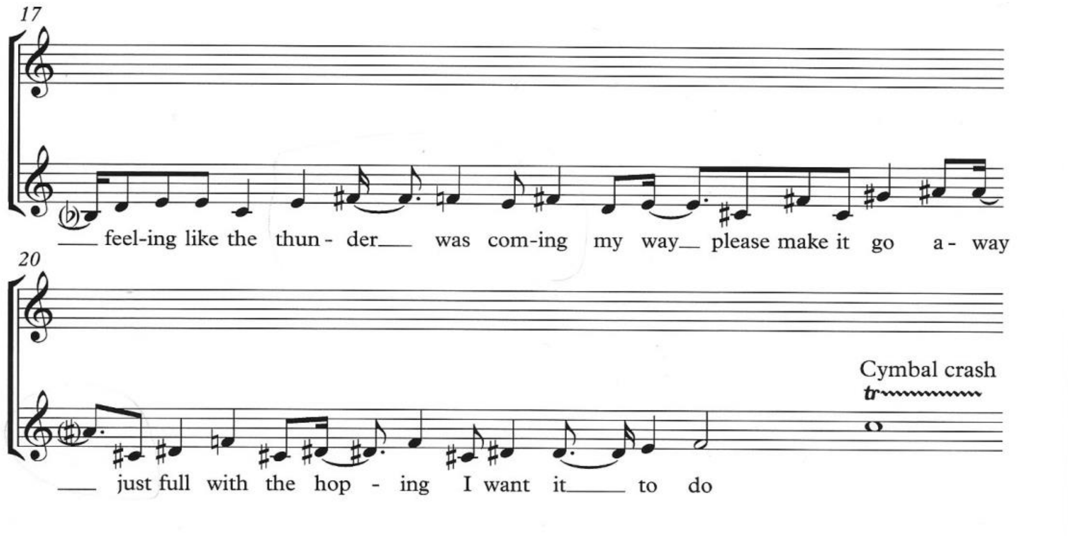
Player 3 Xylophone and Cymbal

Diagram 2: Positioning of participants Case Study 1 non-tutored:

Complete Compositional Product 1 for Xylophone Solo for Case Study 1 non-tutored (60 seconds)

Complete Compositional product 2 Voice 1 for Case Study 1 non-tutored:

The second singer enters at bar 13 with 'I have a feeling…'. The remainder of her part is shown in compositional product 3:



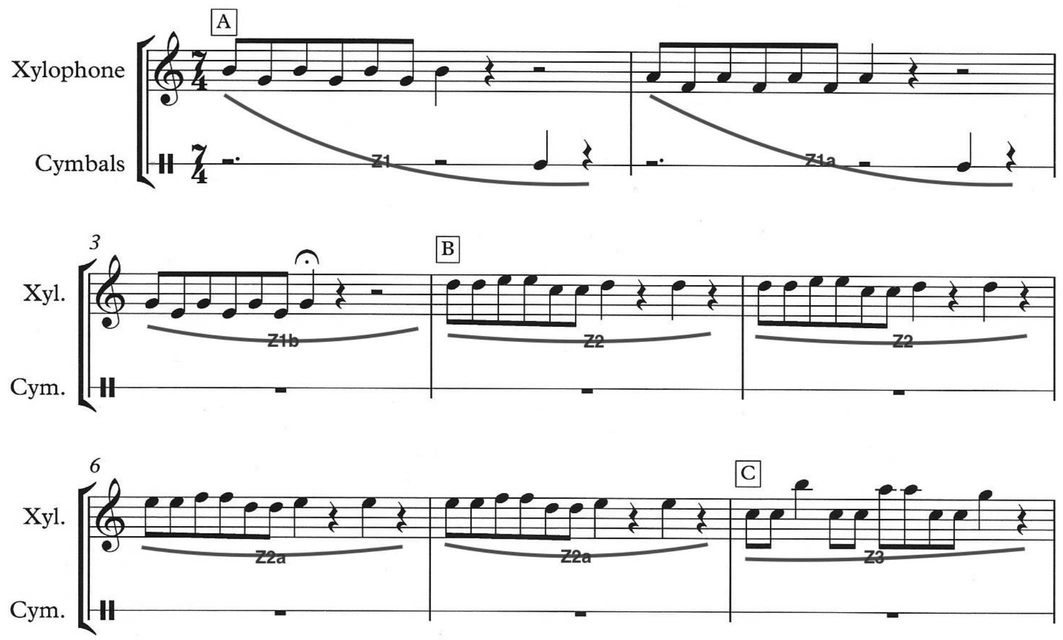
Compositional Product 3 showing the remainder of Voice 2 for Case Study 1 non-tutored

<u>Analytical Overview for Case Study 1 non-tutored</u>

Player 2 (xylophone) was seated on the floor in front of Players 1 and 3. She opens the performance with a crash of hand cymbals followed by a xylophone solo.

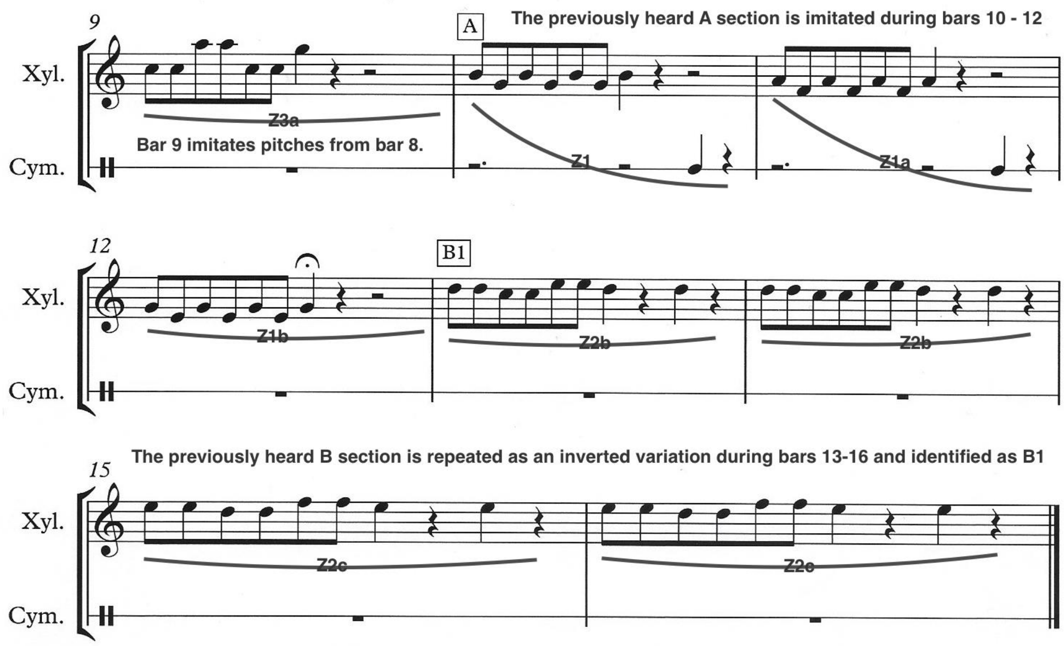
The A part of the solo uses three related phrases, stemming from the first in bar 1, identified as 'Z1'. The phrase in bar 2 identified as 'Z1a' – is identical in rhythm to 'Z1' but played a tone lower. Following this, phrase 'Z1b' in bar 3 is a tone lower again and replaces the cymbal crash heard on beat 7 of bars 1 and 2 with a silent pause. This is followed by idea B, which imitates idea A's rhythm, but uses higher pitch and closer melodic intervals (2nds). Similarly, to idea A, idea B consists of an initial musical statement 'Z2,' followed by a derivation 'Z2a,' which occurs a tone higher. Idea C commencing in bar 8 uses a similar rhythmic pattern to ideas A and B and contrasting wider melodic intervals. The pattern of pitch remains the same with notes repeated in pairs.

The imitative intervallic range between the quaver pitches, imitative rhythmic patterns and use of repeated inter-onset intervals (lengths of time between notes' inceptions) within each of the three ideas demonstrate inter-perspective relationships perceived cognitively by the player, as each musical phrase is derived from that which preceded. These relationships can be deemed 'zygonic,' with examples of primary zygons linking the pitches used in bars 4,5,6 and 7 when notes are repeated directly after each other, and secondary zygonic relationships of onset occurring in bars 1,2,4,5,6 and 7. More complex relationships can be seen to link the three main ideas, such as the use of inversion to create B's variation (marked as B1) and the return to the A idea in bar 10. This additional layer of wider relationships results in logical musical structure.



Compositional Product Xylophone Section showing idea A and B and the opening of idea C for Case Study 1 non-tutored

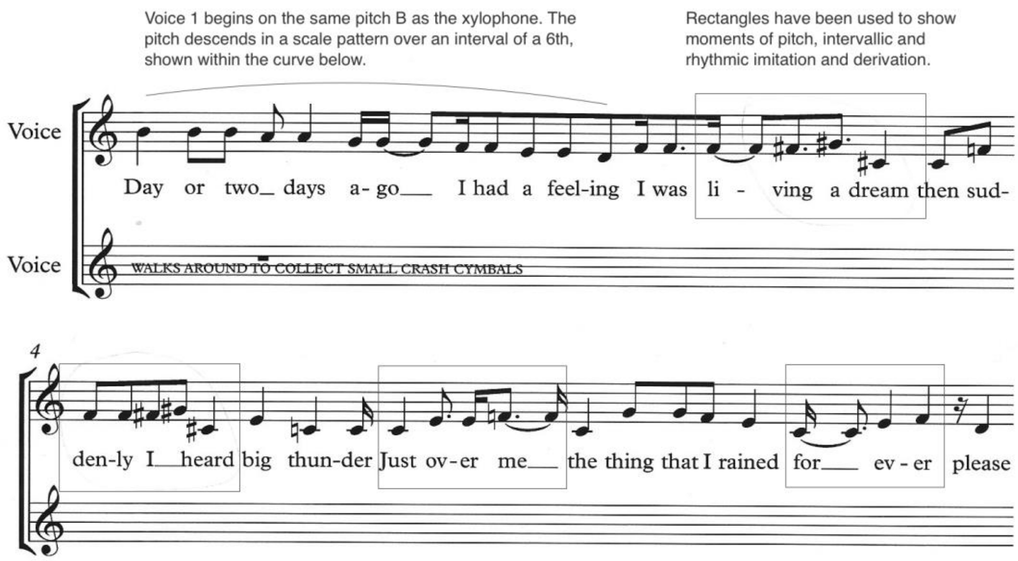
The compositional structure uses 3 ideas (A, B and C). Idea A is imitated exactly following C and idea B is repeated as a variation during the last 4 bars (this is indicated as B1).



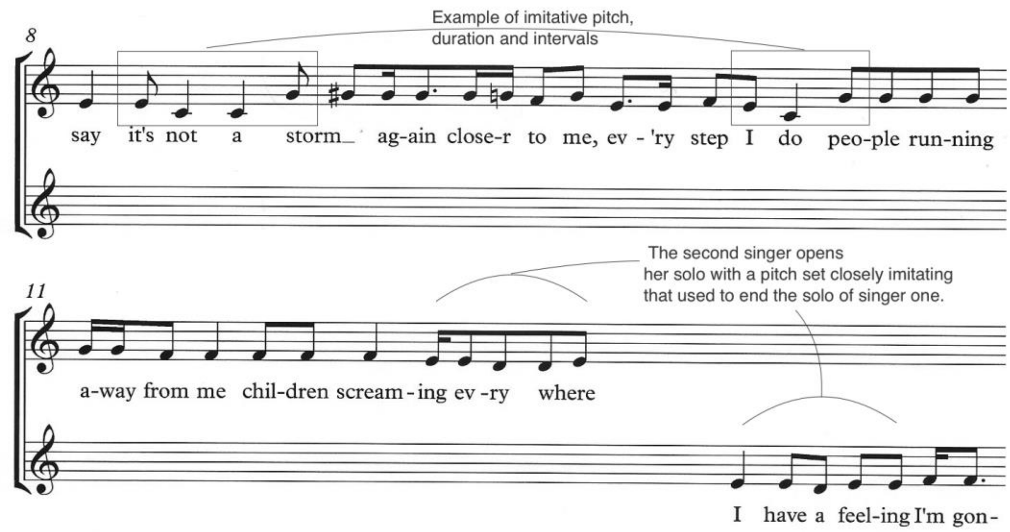
Compositional Product Xylophone Section 2 showing end of idea C, repeat of idea A and B1 variation for Case Study 1 non-tutored

Idea C contrasts with the minor and major 2nds heard in the second half of section B. The initial dissonance of the minor 7th interval between C and B in bar 8 resolves to a more consonant perfect 5th in bar 9.

The second half of this performance consisted of two vocal solos, of which the SoI (Composing) scores given were similar to that of the xylophone player. The vocal parts themselves provided further examples of imitative musical material, which were analysed to investigate relationships between each other and the xylophone solo. The following images demonstrate the imitative relationships found between the vocal solos. A more flexible approach to analysis was employed for the vocal notation as neither used a definitive metre or distinct phrasing, making it difficult to isolate particular sections.

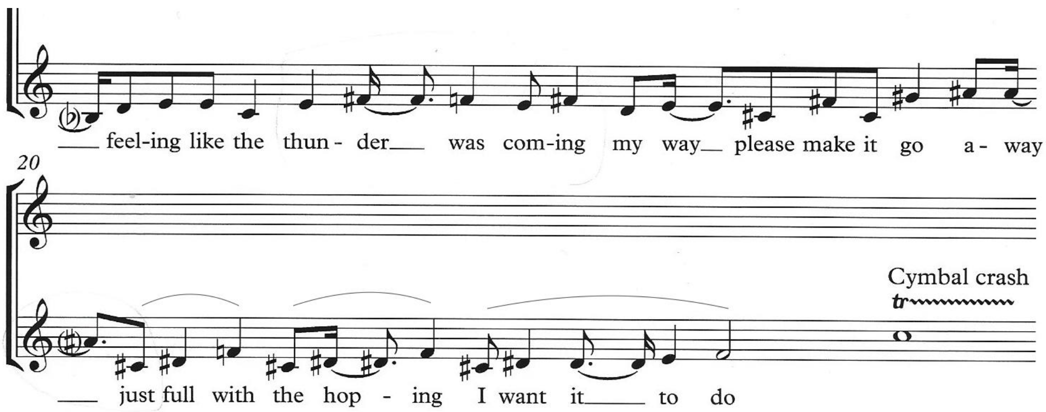


Compositional Product Section showing examples of imitative pitch for singer 1 for Case Study 1 non-tutored



Compositional Product section showing the continued self-imitation of singer 1 and relationships to the opening pitch choices of singer 2 for Case Study 1 non-tutored:

Below is the continuation of Singer 2's vocal solo. The rectangles demonstrate self-imitation and a similar descending pitch direction to the opening phrase of Singer 1. Rhythmically, there are similarities to Singer 1 through the presence of syncopation and lack of definitive pulse. Both singers respond to the rhythm inflections of their created text resulting in syllabic phrases. Singer 2 uses scat and clicks her fingers during this part of the song, emphasising the rhythm.



The solo finishes with a repeated pitch pattern which increases in duration to emphasise the 'end' as demonstrated by the brackets above.

Compositional Product section showing the final part of singer 2's solo for Case Study 1 non-tutored:

The vocal solos demonstrate multiple zygonic relationships within and between each other through the imitative use of pitch and rhythm. To explore the level of imitation of pitch further the frequency and range of different pitches was compared for both singers shown in table 23 below.

Pitches above middle C	Voice 1	Voice 2
B	3	0
A♯	0	3
A	2	0
G♯	8	1
G ♮	13	2
F♯	**2**	**3**
F♮	18	8
E	15	10
D♯	0	4
D	**4**	**3**
C♯	3	5
C♮	8	5
Pitches below middle C		
B	0	1
A♯	0	3
A♮	0	5

Table 23: Comparison of pitch choices for singers Case Study 1 non-tutored

When comparing the two vocal solos Singer 1 sung 76 notes, and Singer 2 sang 53 notes. The results were normalised.

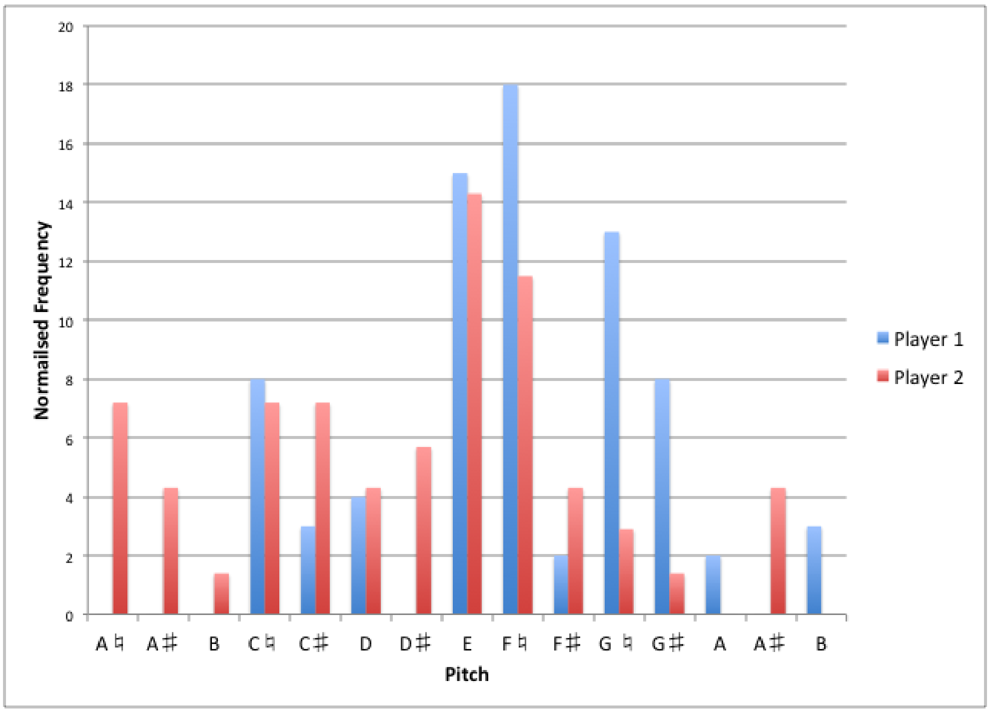


Fig. 22: Normalised frequency for different pitches used by singers in case study 1 non-tutored

Figure 22 (above) shows that both singers favoured pitches E and F. Singer 2 (red) has a wider pitch range (by 3 notes) and uses a greater variety of pitches, whilst singer 1 (blue) favours fewer notes more frequently. As is also visible in the table, the singers use the same pitches frequently, resulting in high levels of imitation.

The text of each singer follows.

<u>Voice 1:</u>

Day or two days ago, I had a feeling I was living a dream

Then suddenly I heard big thunder just over me

The thing that I rained forever please say it's not a storm

Again closer to me, every step I do people running away from me

Children screaming everywhere

<u>Voice 2:</u>

I have a feeling I'm gonna be what I want to be

Do, da do, boo boo da boom oh ah mm

Feeling like the thunder was coming my way

Please make it go away just full with the hoping I want it to do

Both vocalists use emotive language and the shared sonic qualities of rhythmic phrasing, pitch and intervallic range assist in the overall sense of musical coherence. The relationship between the voices and the xylophone solo includes a shared sense of minor tonality and a similar pitch range of a 9th (voices) and compound 11th (xylophone), although as musical performances they are very different, for example the xylophone player sticks to a 7/4 time signature, whilst the singers do not adhere to a discernible beat.

Sounds of Intent (Composing) Analysis

Research question 1 for Case Study 1:

1) In 9-11 year old children's compositions, is there an impact and if so what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on the coherence of individual contributions to group composing?

This will be answered in 2 parts:

1a) Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions to group composing?

1b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to group composing?

SoI (Composing) Analysis Proactive Composing Tutored

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistent self-imitation
PC4 Imitates own motifs	2	Two motifs identified, which are self-imitated.
PC5 Uses scales and metrical patterns	1	One pattern used.
PC6 Performs expressively	1	Same dynamic used throughout but does initiate acceleration of speed from bar 5.

Table 1.1 Tutored: Proactive Composing Category score explanation for Claves (Player 3)

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistent self-imitation
PC4 Imitates own motifs	3	Three motifs identified.
PC5 Uses scales and metrical patterns	3	Three patterns used.
PC6 Performs expressively	1	Fade at end and delivers final quiet tap of claves.

Table 1.2 Tutored: Proactive Composing Category score explanation for Claves (Player 1)

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuous self-imitation.
PC4 Imitates own motifs	5	Three variations of first motif, improvisation involving several variations over different melodic intervals and using different durations.
PC5 Uses scales and metrical patterns	5	Multiple scalic passages (see excerpt 1)
PC6 Performs expressively	1	Quiet ringing of sleigh bells for bars 7-8.

Table 1.3 Tutored: Proactive Composing Category score explanation for Xylophone

SoI (Composing) Analysis Proactive Composing Non-Tutored

SoI Category and Criteria	**Score given (Scale 0-5)**	**Reason for score**
PC3 Imitates own sounds	5	Continuous self-imitation during the solo.
PC4 Imitates own motifs	5	Continuous self-imitation of identifiable motifs.
PC5 Uses scales and metrical patterns	5	Repeated used of patterns in major and minor 3rds and 2nd intervals and movement up and down spanning a compound 11th between E and A. (see excerpt 1 and
PC6 Performs expressively	5	There is conscious use of tempo changes, dynamic contrasts and varying articulation throughout.

Table 1.4 Non-Tutored: Proactive Composing Category score explanation for Xylophone

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistent repetition of pitches and some words.
PC4 Imitates own motifs	4	Repetition of syncopated rhythms and pitch motifs (see excerpt 3)
PC5 Uses scales and metrical patterns	4	Use of scalic movement up and down.
PC6 Performs expressively	2	Some dynamic contrast and drama is present.

Table 1.5 Non-Tutored: Proactive Composing Category score explanation for Singer 1

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistent repetition of pitch and words.
PC4 Imitates own motifs	4	Repeated pitch and rhythm phrases.
PC5 Uses scales and metrical patterns	4	Uses scalic movement and patterns of ascending and descending pitch (see excerpt 2)
PC6 Performs expressively	3	Some dynamic awareness and use of scat varies the timbre of the voice.

Table 1.6 Non-Tutored: Proactive Composing Category score explanation for Singer 2

<u>Response to Research Question 1a for Case Study 1:</u>

Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions compositions, improvised in small groups?

The classical stimulus resulted in similar levels of individual musical coherence from participants in both groups. For example, both xylophone parts used repeated motifs, scales, patterns and consistent self-imitation at an equally complex level:

Excerpt 1: Xylophone from Case Study 1 tutored example:

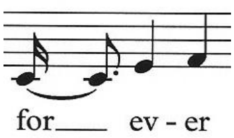
Excerpt 2: Xylophone from Case Study 1 non-tutored example:

Rhythmic repetition and self-imitation were also evident at a more simplified level within the tutored clave parts. The simplicity is likely to be due to the limitations of an un-pitched instrument:

Excerpt 3: Example of rhythmic imitation within and between the two clave parts in Case Study 1 tutored:

Further examples of self-imitation are evident within the vocal parts where, the pitch pattern shown in excerpt 5 in the opening phrase of singer 1 can be found again in the second phrase:

Excerpt 4: Example of a repeated pitch pattern within non-tutored singer 1 part for Case Study 1



Excerpt 5: Example of use of the same pitch pattern later in the solo passage of non-tutored singer 1 for Case Study 1

Evidence of repeated use of scales and metrical patterns and expression was also found in both singers' parts:

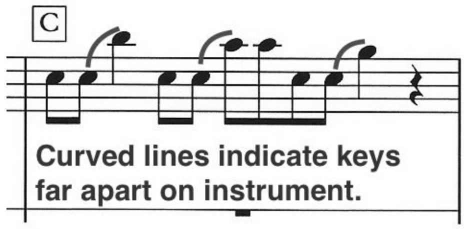
Excerpt 6: Example of use of scales and expressive scat within non-tutored singer 2 part for Case Study 1

Whilst the compositional contributions of both groups share technical similarities, there is a lack of musical similarity between the two creative products overall. This supports the fact that the stimulus was not an influential factor on any specific area of this aspect of the composing process, when measured using the proactive with composing (PC) SoI (Composing) scoring criteria.

Response to Research Question 1b Case Study 1:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

In order to compare the differences between the coherence of individual responses from tutored and non-tutored players in this example, I considered the complexity of the zygonic relationships occurring within the musical material. Instrumental skill and the use of imitative material within the xylophone parts is a prominent feature of both performances. The non-tutored player shows as much and occasionally more technical skill on the instrument than the tutored player. Examples of technique within both parts are shown below.

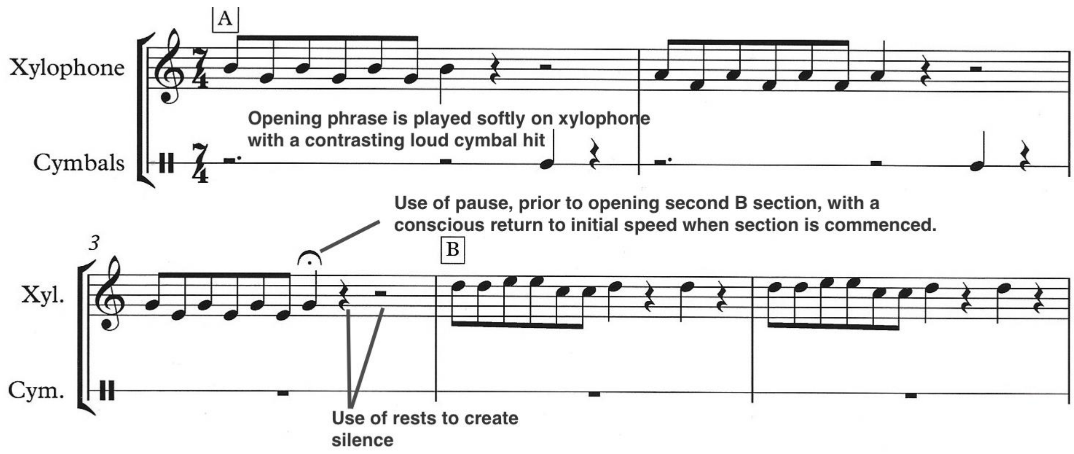


Excerpt 7: Example of wide intervals used by non-tutored player played with 2 beaters at tempo of 108 crotchet beats per minute for Case Study 1

Playing wide intervals with accuracy and speed requires skill but was successfully achieved by this participant.

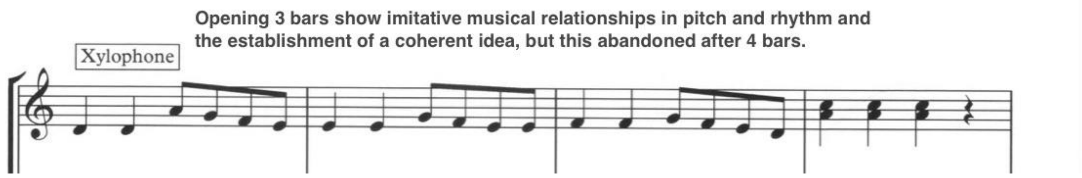
Excerpt 8: Example of the rapid semi-quaver passages improvised by the tutored xylophone player for Case Study 1

The largest difference in scoring between these two (tutored and non-tutored xylophone) players is in category PC6 ('performs expressively), whereby the non-tutored player scored 5 against the tutored players' score of 1. This is due to the fact that, within the video data and through the notation, it can be speculated that the non-tutored player connected at a deeper emotional level with the music she was playing than the tutored player. This is shown in the use of a large range of dynamics, pauses, use of silence and contrasting timbre, which was interspersed with the notes themselves, maintaining musical coherence throughout.



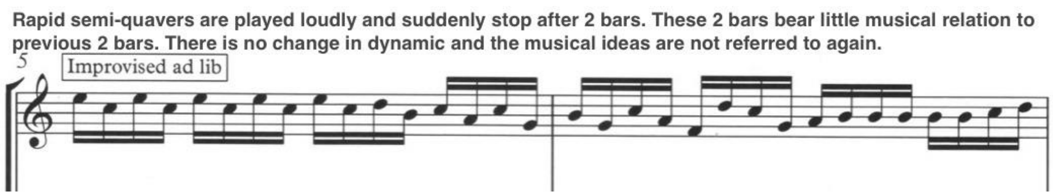
Excerpt 9: Examples of non-tutored xylophone player expression in Case Study 1

This was in contrast to the tutored xylophone player's part, which did not include any dynamics or conscious use of musical expressive devices and which was played in two separate unrelated halves, see below.



Excerpt 10: Opening *of the xylophone part for Case Study 1 tutored*

The solo then moves onto another idea, which although uses notes from the previous bars, abruptly stops.



Excerpt 11: Last 2 bars of the xylophone part in Case Study 1 tutored

Therefore, whilst these examples show individual overall musical coherence, the level of that coherence is higher within the non-tutored xylophone part, due to her ability to relate her musical ideas through the use of derivation, such as the B1 variation.

There is a lack of logical connection between ideas within the tutored product resulting in a more fragmented structure than in the non-tutored example. The other player parts demonstrate the same; whilst the tutored clave parts indicate individual understanding, the non-tutored singing parts demonstrate this at a more musically complex level. It can be summarised that in the category of Proactive Composing (PC) being non-tutored resulted in higher levels of individual coherence within the context of group composing in this example.

Research question 2 for Case Study 1:

2) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on children's use of stimulus material during group composing?

This will be answered in 2 parts:

2a) In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

2b) In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on children's use of stimulus material during group composing?

SoI (Composing) Analysis Proactive using the Stimulus (PS) Tutored

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Repetitive beats on crotchets and quavers.
PS4 Imitates motifs from stimulus	1	Only in the repeated beats on claves.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Use of steady 4/4 phrases, use of tambourine shaking in bars 5-6 adds to creating denser texture during this part.
PS6 Imitates expression from performance of stimulus	1	Fade at end.

Table 1.7 Tutored: Proactive Using the Stimulus Category score explanation Claves (Player 3)

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Repetitive sounds, use of crotchets, quavers and semi-quavers.
PS4 Imitates motifs from stimulus	1	Repeated beats, such as the left-hand repeated note in the prelude.
PS5 Uses scales and metrical patterns and structure from stimulus	1	Only through repeated beats.
PS6 Imitates expression from performance of stimulus	2	Use of accelerando in bars 5-6 heard as increase in texture and dynamic at 1 minute 22 seconds into prelude.

Table 1.8 Tutored: Proactive Uses Stimulus Category score explanation Claves (Player 1)

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	5	Use of crotchet, quaver and semi-quaver durations combined. Use of major and minor tonality.
PS4 Imitates motifs from stimulus	5	Multiple motifs identified. Use of steady 4/4 beat phrases, descending passages, similar pitch range and repetitive note groups. All of these features are demonstrated in the prelude within the first 2.5 minutes.
PS5 Uses scales and metrical patterns and structure from stimulus	3	Scalic passages present, which occur in much of the prelude melody, use of different melodic intervals as in the prelude. Patterns used can be likened to those within Chopin.
PS6 Imitates expression from performance of stimulus	2	Similar tempo and use of dynamics at the end.

Table 1.9 Tutored: Proactive Using the Stimulus Category score explanation Xylophone

SoI (Composing) Analysis Proactive using the Stimulus (PS) Non-Tutored

SoI Category and Criteria	Score given (Scale 1-5)	Reason for Score
PS3 Imitates sounds from stimulus	5	The sounds used are imitative of the falling quaver patterns found in Chopin's Raindrop Prelude emulating rain drops.
PS4 Imitates motifs from stimulus	5	Use of repeated arpeggio quaver movement imitative of broken chords in prelude.
PS5 Uses scales and metrical patterns and structure from stimulus	4	Ternary form attempted plus use of combined major and minor intervals. Begins and ends on E.
PS6 Imitates expression from performance of stimulus	4	The dynamic colour is expressive as in the stimulus. The tempo is subject to several moments of rubato and use of 'a tempo' to return to previous speeds. This is a common feature of classical / romantic piano writing.

Table 1.10 Non-Tutored: Proactive Using the Stimulus Category score explanation for Xylophone

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Continuous pitch movement as in Chopin.
PS4 Imitates motifs from stimulus	2	Dotted rhythms and descending scalic patterns as in prelude.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Pitch range of singer covers similar range of prelude, although prelude does go both higher and lower than either voice. Small intervals such as major 2nd and minor 3rds found in both.
PS6 Imitates expression from performance of stimulus	2	Slow pace, long extended phrases.

Table 1.11 Non-Tutored: Proactive Using the Stimulus Category score explanation for Singer 1

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Continuous pitch movement around a repetitive melody as in Chopin.
PS4 Imitates motifs from stimulus	2	Dotted rhythms and scalic patterns ascending and descending from opening pitch.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Pitch range covered is within that of the prelude, use of dotted rhythms and narrow intervals.
PS6 Imitates expression from performance of stimulus	2	Extended melodic phrases, some dynamic contrasts particularly during the scat singing.

Table 1.12 Non-Tutored: Proactive Using the Stimulus Category score explanation for Singer 2

Response to Research Question 2a for Case Study 1 Tutored:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

Both groups in this example use elements of Chopin within their parts as indicated in the Proactive with the Stimulus (PS) scoring tables. The non-tutored participants chose to use the voice, which led to more extensive experimentation with pitch, resulting in more examples than the tutored group who chose 2 non-pitched instruments. Whilst the tutored group imitated Chopin's classical homophonic texture of a melodic line supported by contrasting accompaniment, the non-tutored group created 2 separate solos for voice and xylophone. This indicates a different type of response from each group; the non-tutored participants have responded to aspects such as pitch movement and phrasing, as oppose to the tutored participants who have attempted to imitate the texture. The scores of non-tutored participants are higher due to their frequent use of expressive devices (PS level 6).

Response to Research Question 2b for Case Study 1 Tutored:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on children's use of stimulus material during group composing?

Both the non-tutored and tutored group produced very different responses to this stimulus. Two of the non-tutored participants' lack of instrumental learning could have initiated their decision to use their voices rather than percussion for creating a pitched piece. Their use of three pitched parts resulted in higher Proactive using the Stimulus criteria scores as there are more clearly related examples to the stimulus material.

The tutored group produced a piece using homophony, which does imitate the style of the Chopin, but other musical references were few, partly due to their using percussion and due to a lack of expression. Their piece was also a lot shorter (35 seconds) compared to the non-tutored (140 seconds), further reducing the presence of musical examples.

In summary the non-tutored group were able to use the stimulus material at a more complex level than tutored participants. It can therefore be deduced from this example that whether or not participants receive instrumental lessons does affect their use of stimulus material in the context of group composing.

Research question 3 for Case Study 1:

3) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of using experimental or traditional Western classical musical stimuli on the structure and content of 9-11 year olds group compositions?

This will be answered in 2 parts:

3a) Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's compositions, improvised in small groups?

3b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's compositions, improvised in small groups?

SoI (Composing) Analysis Evaluating the Product (EP) Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	2	Repetition in bars 1-4 mimics other players, use of tambourine and then rain stick for last 4 bars contributes to overall sound.
EP3b Manipulates qualities of sounds to create particular stated effects	3	Uses three different timbres and instruments.
EP4a Repetition of motifs as a structural feature of the piece	2	Only for first 4 bars.
EP4b Uses motifs to create particular effects	2	Effect of imitating the other players and sustained shaking under faster moving xylophone during bars 5-6.
EP5a Uses scales, metrical patterns and form to create coherent structure	2	One pattern identified, which contributes to the structure of the first section.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	Sustained shaking sound played on 2 different instruments creates a narrative but is vastly different from rhythmic narrative in bars 1-4.
EP6a Deliberately uses expressive effects to articulate structure	2	Accelerando in section 2 and fading dynamics at the end.
EP6b Deliberately uses conventional expressive devices to convey particular effects	2	Changes instrument.

Table 1.13 Tutored: Proactive Evaluating the Product Category score explanation for Claves (Player 3)

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	3	Rhythmic repetition through bars 1-7
EP3b Manipulates qualities of sounds to create particular stated effects	2	Changes instrument for each section.
EP4a Repetition of motifs as a structural feature of the piece	2	Motifs are used in rhythmic imitation of the xylophone for bars 1-6, contributing to overall structure.
EP4b Uses motifs to create particular effects	2	To accentuate use of semi-quavers during bars 5-6, to contrast with other players during bar 7.
EP5a Uses scales, metrical patterns and form to create coherent structure	2	Structure created through repetition and imitation of Player 3's patterns.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	The two patterns used create a consistent narrative as a repetitive rhythmic line continuing throughout the piece.
EP6a Deliberately uses expressive effects to articulate structure	2	Uses different timbres, uses silence (bar 7), uses opening timbre (claves) to close the piece.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Shorter durations used to convey energy in bars 5-7, diminuendo of sound at the end on tambourine.

Table 1.14 Tutored: Proactive Evaluating the Product Category score explanation for Claves (Player 1)

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	3	Sounds are repeated, but the structure of the piece as a whole is unclear. The 3 sections use different ideas each time and do not relate to previous ideas heard.
EP3b Manipulates qualities of sounds to create particular stated effects	3	Uses durational changes to create effect and sustained sounds at the end.
EP4a Repetition of motifs as a structural feature of the piece	3	Motifs used are repeated but again the first 4 bars uses ideas and pitch patterns that are not referred to again.
EP4b Uses motifs to create particular effects	2	The different motifs used create contrast and different mood – the first 4 bars are calmer than the rapid semi-quavers used in bars 5-6.
EP5a Uses scales, metrical patterns and form to create coherent structure	2	The scales and patterns used create sub-structures of their own, but overall the piece sounds as three unrelated sections. Bar 6 sees the xylophone part suddenly abandoned at an unusual musical point (ascending semi-quavers)
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	Narrative is visible within the sub-structures but not throughout.
EP6a Deliberately uses expressive effects to articulate structure	2	Changes instrument to imitate motion of rain stick during bar 7-8.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Use of fade at the end.

Table 1.15 Tutored: Proactive Evaluating the Product Category score explanation for Xylophone

SoI (Composing) Analysis Evaluating the Product (EP) Non-Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 1-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	The repeated motifs (marked on score as A, B, C, A and B1) structure the overall melodic shape.
EP3b Manipulates qualities of sounds to create particular stated effects	5	The interspersing sound of the cymbal at the end of section A's 7 beat phrases is used as a statement to identify this section. This creates a contrast in timbre. The cymbal is also not used to indicate a change in ideas.
EP4a Repetition of motifs as a structural feature of the piece	5	The motifs used are played identically in a particular order and provide structure.
EP4b Uses motifs to create particular effects	5	The motifs using contrasting close and wide intervals create a musical interest.
EP5a Uses scales, metrical patterns and form to create coherent structure	5	The patterns used create an identifiable structure of considerable complexity moving across the whole pitch range of the diatonic xylophone and requiring considerable technical skill.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	5	The piece is heard as a musical conversation whereby the 3 sections form a structural pathway of inter-related melody.
EP6a Deliberately uses expressive effects to articulate structure	4	There are deliberate pauses at the end of each A section as if to accentuate the lack of cymbal sound previously heard. Changes in tempo are used to emphasis the return of previously heard material.
EP6b Deliberately uses conventional expressive devices to convey particular effects	3	There is conscious use of tempo, silence, dynamic and timbre changes to convey musical effect at 3 noticeable points.

Table 1.16 Non-Tutored: Proactive Evaluating the Product Category score explanation for Xylophone

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	Continuous repetition of related sounds creating an overall structure.
EP3b Manipulates qualities of sounds to create particular stated effects	2	Vocals remain with similar dynamic throughout, but there is occasional rubato with the phrasing, which appears intentional.
EP4a Repetition of motifs as a structural feature of the piece	5	Dotted rhythms and scalic motion dominate the content of motifs and is the prominent structural feature.
EP4b Uses motifs to create particular effects	2	Modifies motifs to create syncopation.
EP5a Uses scales, metrical patterns and form to create coherent structure	3	Structure is not 'formal' but there is a similarity in the length of each voice performance and text length giving coherence.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	3	The pitch patterns are in line with the syllabic structure of the text, creating repetition and therefore an overall narrative.
EP6a Deliberately uses expressive effects to articulate structure	1	Not really, just rubato.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Again, just pulling at the indeterminate time signature.

Table 1.17 Non-Tutored: Evaluating the Product Category score explanation for Singer 1

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	Continuous repetition.
EP3b Manipulates qualities of sounds to create particular stated effects	3	Scat, finger clicking, tempo change at end.
EP4a Repetition of motifs as a structural feature of the piece	5	Consistent repetition of motivic ideas.
EP4b Uses motifs to create particular effects	3	Uses scat and finger clicking during motifs to embellish performance.
EP5a Uses scales, metrical patterns and form to create coherent structure	3	Scalic patterns are used to form overall structure.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	3	Narrative created through repeated use of dotted rhythms, syncopation and pitch patterns.
EP6a Deliberately uses expressive effects to articulate structure	2	Body percussion, tempo changes at end.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Tempo change.

Table 1.18 Non-Tutored: Proactive Evaluating the Product Category score explanation for Singer 2

Response to Research Question 3a for Case Study 1:

Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's group compositions?

Both groups have created a prominent melodic line, which forms the musical content of each example and which is a structural feature of the stimulus. The tutored group have used this to attempt melody-dominated homophony, which imitates the structure of Chopin, therefore indicating a direct impact on their choice of content from the stimulus heard. They have also experimented with different timbres, (for example tambourine shaking in bars 1,2,5, and 6 versus tambourine tapping in bars 7 and 8, and rain-stick fast and slow tipping in bars 7 and 8) although these appear randomly placed and do not relate to other material.

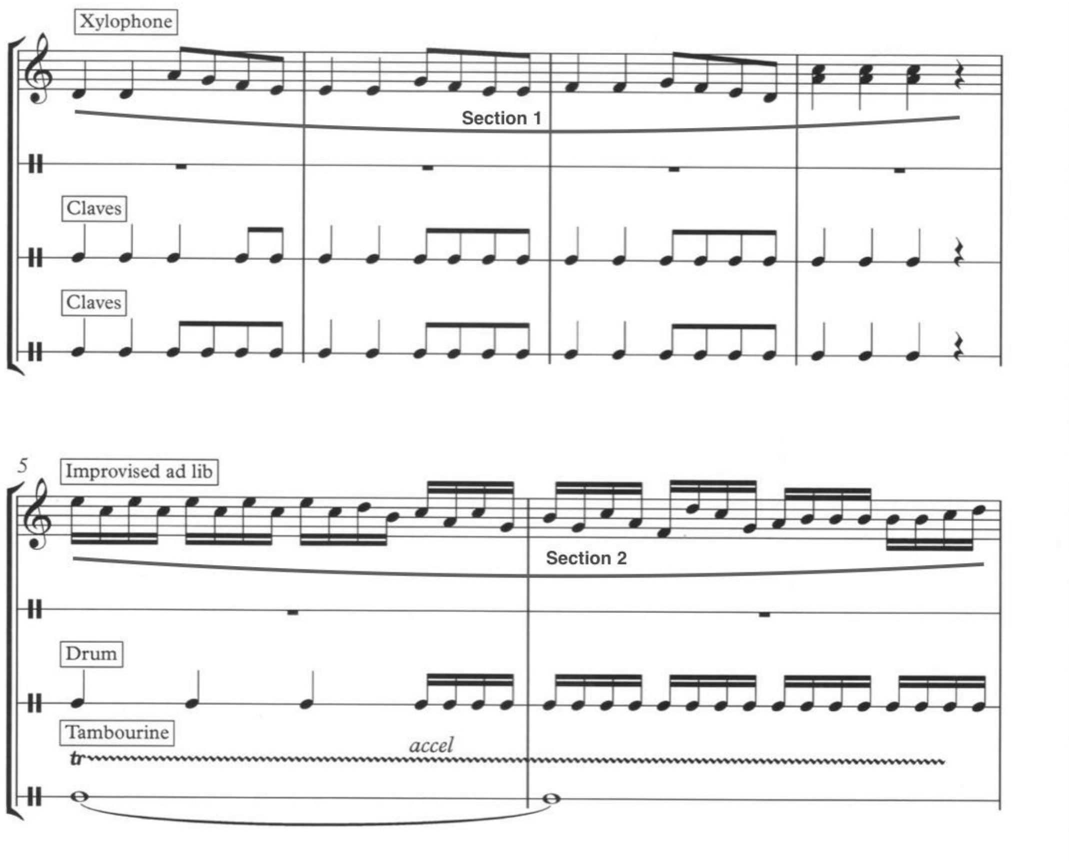
Conversely, for the non-tutored participants the structure and content of the response is varied including use of text, different timbres and, particularly for the xylophone part, the development of motivic ideas. Both groups also use musical ideas that do not relate to the stimulus, such as silence, sustained sounds (tambourine shaking) and irregular time signatures (use of 7/4 time by non-tutored xylophone player).

The Chopin prelude is an example of complex classical piano writing, which may have impacted upon the diverse array of musical responses. Overall, the impact of the stimulus on the structure of the compositional products for these two groups appears to be at a low level.

Response to Research Question 3b for Case Study 1:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's group compositions?

The structure and content of these two examples is diverse, and, apart from the creation of a melody line, there are very few musical similarities. The tutored participants use a variety of content but the structure of their piece is segmented. For example, section 2 (bars 5-6) lacks musical relation to section 1 (bars 1-4). During this section the xylophone improvisation begins and ends with no rhythmical reference to section 1, however some pitches are re-used (F, G, A, C). It ends on an upward movement of semi-quavers and then abruptly stops, which indicates a lack of musical narrative. The tutored clave players imitate the xylophone rhythmically for section 1 and then resort to other ideas for section 2.



Excerpt 12: Demonstrates the lack of musical relationships between sections 1 and 2 of the parts in Case Study 1 tutored.

Non-tutored participants' have effectively performed as a soloist followed by a duet, but there is a definitive coherence achieved through relating their ideas to each other (in the case of the singers) and in the case of the xylophone player, a level of musical skill and creativity shown through repetitive motifs and the development of musical ideas.

In summary the increased presence of primary, secondary and tertiary zygonic relationships within the non-tutored composition created a product of a higher level of logical musical structure than the tutored. This indicates that in this case, whether participants have instrumental lessons has impacted upon the structure and content of creative products in the context of group composing.

Research question 4 for Case Study 1:

4) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and experiencing experimental or traditional Western classical musical stimuli on children's capacity to compose coherently with others in small groups?

This will be answered in 2 parts:

4a) Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in a group?

4b) Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in a group?

SoI (Composing) Analysis Interactive Composing (IC) Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	3	Produces some sounds that are imitated by others.
IC3b Imitation of others' sounds	2	Direct rhythmic imitation during bars 1-4.
IC4a Deliberately provides motifs to 'engage' others	2	Two motifs identified, which are directly and in part imitated at various points.
IC4b Imitates others' motifs	2	Bars 1-4 imitates both other players.
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	During bars 1-4 only.
IC5b Imitates others' use of scales and metrical patterns	1	During bars 1-4 only.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Changes instrument to diversify timbre.
IC6b Imitates others' expression whilst playing	2	Other players also change instruments.

Table 1.19 Tutored: Interactive Composing (IC) category score explanation for Claves (Player 3)

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	4	Direct rhythmic imitation during bars 1-6 with xylophone.
IC3b Imitation of others' sounds	4	The most imitative of all players in the group.
IC4a Deliberately provides motifs to 'engage' others	3	Motifs used are imitated by both other players.
IC4b Imitates others' motifs	3	Direct rhythmic imitation of motifs with xylophone for bars 1-6
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	The two patterns used are imitated by both other players.
IC5b Imitates others' use of scales and metrical patterns	2	Again, imitation of patterns occurs through bars 1-6.
IC6a Deliberately plays expressively through the playing /performing of the composition	2	Joins speeding up effect initiated by tambourine at bar 5 and provides last very small sound.
IC6b Imitates others' expression whilst playing	2	Similar dynamics, tempo and changing timbres.

Table 1.20 Tutored: Interactive Composing (IC) category score explanation for Claves (Player 1)

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	4	The sounds provided by this player are imitated in full and in part by both other players, at various points during the performance.
IC3b Imitation of others' sounds	2	Only player with pitched instrument but changes to using sleigh bells to imitate the rain stick at the end.
IC4a Deliberately provides motifs to 'engage' others	3	Different motifs, which engage others rhythmically
IC4b Imitates others' motifs	2	Again, rhythmically but not in any other sense.
IC5a Deliberately provides scales and metrical patterns for others to imitate	3	Multiple patterns but as the others are not using pitch, they can only imitate rhythmically.
IC5b Imitates others' use of scales and metrical patterns	2	Rhythmically through bars 1-6
IC6a Deliberately plays expressively through the playing /performing of the composition	2	Loud energetic playing of xylophone, contrasting with quiet ringing of bells.
IC6b Imitates others' expression whilst playing	1	The loudest player when using xylophone, the quietest when playing bells, so little awareness of others expression.

Table 1.21 Tutored: Interactive Composing (IC) category score explanation for Xylophone

SoI (Composing) Analysis Interactive Composing (IC) Non-Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 1-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	1	The xylophone performs in a solo context so there are no simultaneous responses, however there is some pitch imitation within the vocal solos that follow.
IC3b Imitation of others' sounds	1	As above.
IC4a Deliberately provides motifs to 'engage' others	1	Quaver pairs are heard in the vocal solos.
IC4b Imitates others' motifs	1	Only within isolated pitches and quaver rhythms.
IC5a Deliberately provides scales and metrical patterns for others to imitate	1	Only evident in the pitch imitation that occurs.
IC5b Imitates others' use of scales and metrical patterns	1	Again, difficult to see directly within the performance.
IC6a Deliberately plays expressively through the playing /performing of the composition	5	Wide spectrum of dynamic awareness throughout; the player is lost within her solo. She uses tempo changes, crescendo and diminuendo and timbral contrast. The performance is inherently musical.
IC6b Imitates others' expression whilst playing	1	Not possible to decipher, but it could be said that pulse and volume are similar.

Table 1.22 Non-Tutored: Interactive Composing (IC) category score explanation for Xylophone

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	5	Multiple imitative moments between the singers' performances as detailed in the score.
IC3b Imitation of others' sounds	5	Consistently with the other singer.
IC4a Deliberately provides motifs to 'engage' others	5	Multiple motifs, which are then in part imitated by singer 2.
IC4b Imitates others' motifs	5	Two way imitation occurring consistently between the voice parts.
IC5a Deliberately provides scales and metrical patterns for others to imitate	5	Multiple use of scalic patterns, which are then imitated.
IC5b Imitates others' use of scales and metrical patterns	5	Consistent imitation with singer 2.
IC6a Deliberately plays expressively through the playing /performing of the composition	2	Some dynamic colour and understanding of phrasing.
IC6b Imitates others' expression whilst playing	1	Similarities to singer 2.

Table 1.23 Non-Tutored: Interactive Composing (IC) category score explanation for Singer 1

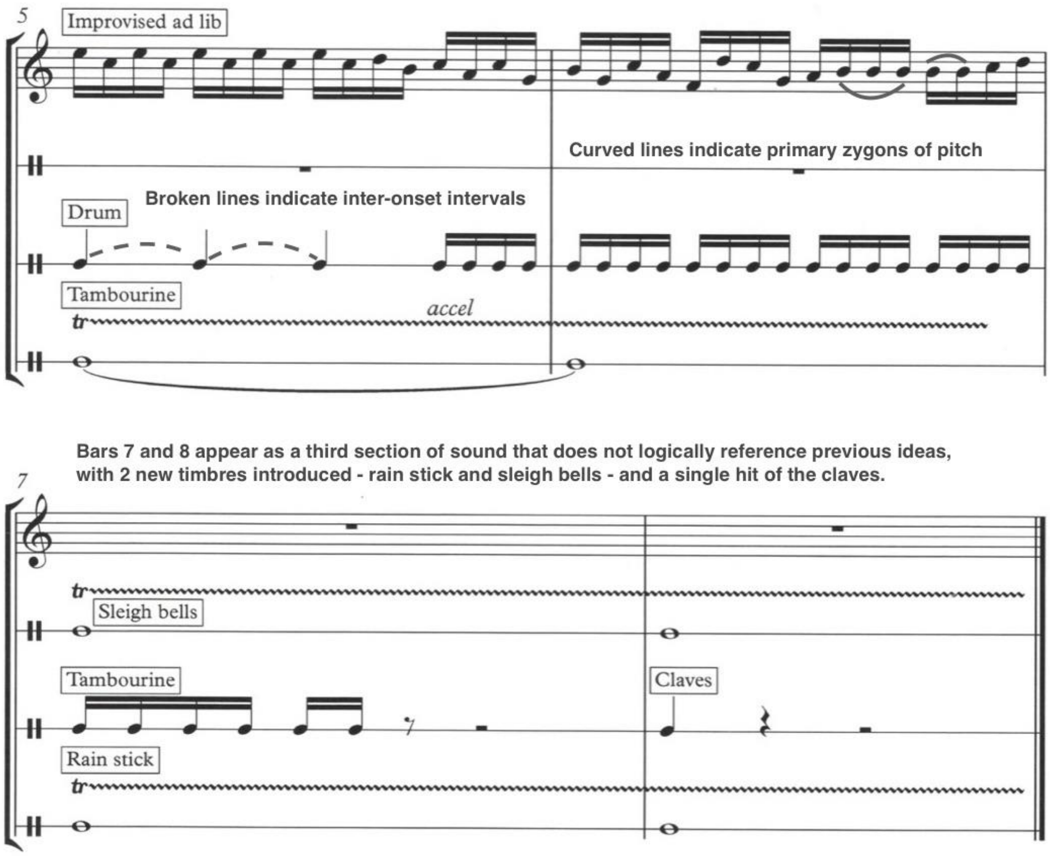
SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	5	Multiple examples of pitch imitation with singer 1.
IC3b Imitation of others' sounds	5	Consistent imitation of singer 2 throughout.
IC4a Deliberately provides motifs to 'engage' others	5	Multiple examples of motifs which are imitated within singer 1's part.
IC4b Imitates others' motifs	5	Multiple examples of rhythmic and pitch imitation between the singers' parts.
IC5a Deliberately provides scales and metrical patterns for others to imitate	5	Imitation occurring at regular points with scalic passages and phrase patterning.
IC5b Imitates others' use of scales and metrical patterns	5	Consistent imitation of singer 1.
IC6a Deliberately plays expressively through the playing /performing of the composition	2	Use of dynamics and scat.
IC6b Imitates others' expression whilst playing	1	Similar volume to singer 1.

Table 1.24 Non-Tutored: Interactive Composing (IC) category score explanation for Singer 2

Response to Research Question 4a for Case Study 1:

Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in small groups?

Both groups demonstrate collaborative behaviour during the composing task, but the levels at which this occur are different. The tutored group's creative product indicates moments of musical collaboration, for example during bars 5-6 where primary zygons of pitch and inter-onset interval are evident, but they are not sustained, nor referred to again. On listening, the musical form is fragmented and confusing.

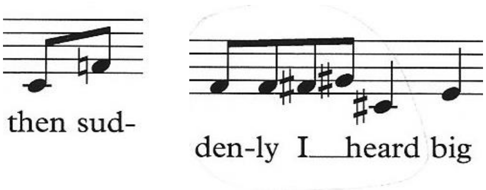


Excerpt 13: Second and third sections of the Compositional Product for Case Study 1 tutored:

This tutored group demonstrate similar levels of musical imitation in response to Classical music as in their first response to experimental stimuli (see case study 7A in appendices). The third example for this group (see case study A12 low scoring Experimental in appendices) shows a decrease in collaboration, possibly due to the absence of one player. Thus, it is fair to speculate that the stimulus is not an influential factor on levels of collaboration in this group.

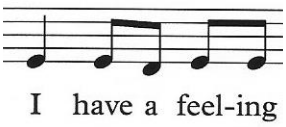
The non-tutored response is less directly imitative (as the xylophone is clearly separated) than their experimental responses (see appendix case study A14), but there are examples of rhythmic relationships between all three parts, at various points.

Bar 2 of xylophone solo

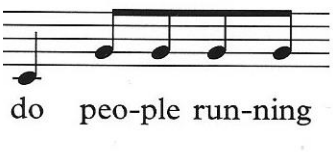


First phrase of singer 1

Excerpt 14: Example of rhythmic imitation between xylophone and vocal parts in Case Study 1 non-tutored



Opening of singer 2's solo



Ending of singer 1's solo

Excerpt 15: Example of rhythmic imitation between the vocal parts in Case Study 1 non-tutored

These examples of imitation are threaded throughout the non-tutored performance, unlike the tutored example, giving a greater sense of musical organization.

It can be suggested that the classical stimulus was influential on non-tutored participants working in a more 'isolated' fashion than when working with the experimental stimulus. It could just be that this group decided to work more independently during this task, but it is not clear why. Therefore, it can be summarised that in this case it is difficult to determine the impact of contrasting musical stimuli on participants' level of collaboration when composing.

Response to Research Question 4b for Case Study 1:

Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in a group?

For tutored participants in this example the impact of instrumental tuition can be linked to the style of playing displayed by the xylophone player. The first 4 bars of the piece are self-imitative, showing a link between player ideas, however the non-pitched percussion players do not develop their ideas beyond very simple rhythmic mimicking of the xylophone or shaking of instruments. There is constant changing of sounds, which offers variations in timbre.

The imitative nature of the non-tutored groups' vocal parts indicates that the singers have used each other's ideas to create two solos which differ in text but which contain similarities in pitch and rhythm throughout. The xylophone player has worked alone but the two sets of ideas have been put together.

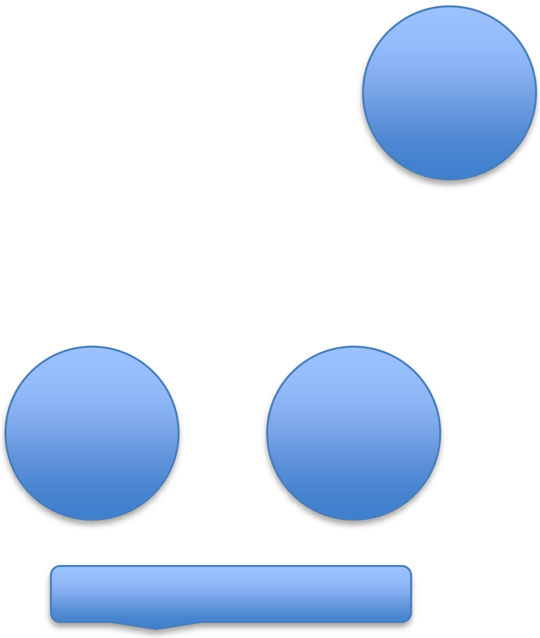
In summary, whether participants receive instrumental lessons has affected levels of musical collaboration in this example. Non-tutored participants demonstrate a greater propensity to link their ideas and a greater likelihood of imitating the musical ideas of peers in a collaborative composing context, than tutored participants. This is evident in the higher frequency of zygonic relationships of pitch and rhythm, and in the resulting higher scores within the Interactive with Composing (IC) scores.

5.3.2 Case Study 2 Medium Scoring Classical

Part 1: Tutored (Performance length: 51 seconds)

This compositional response was created using an electronic piano and recorder. Player 1 used a descant recorder and players 2 and 3 used the higher end of the piano, both playing above middle C.

Player 1 Player 2 Player 3 - recorder (standing)



Piano

Diagram 3: Positioning of participants Case Study 2 tutored:

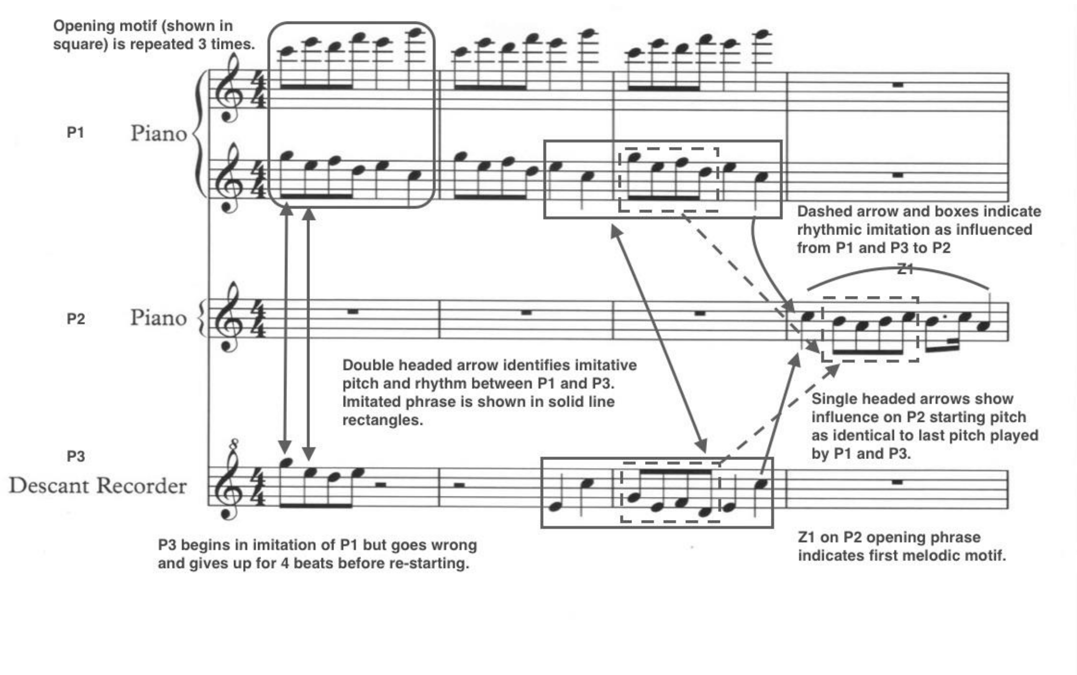

Piano
Piano
Improvisatory
Descant Recorder


5

Complete compositional product for Case Study 2 tutored

<u>Analytical Overview for Case Study 2 tutored</u>

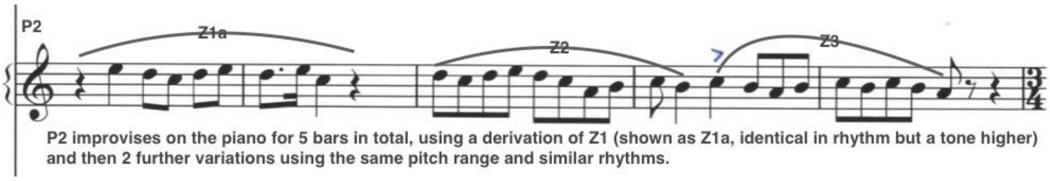
Players 3 and 1 begin playing together, however player 3 drops out after 4 notes, discouraged by the dissonant clash between her second E pitch and the piano D pitch, indicated by an expression of dislike (stopping and grimacing). She listens, waits and then re-enters at the end of bar 2, continuing to imitate the piano pitch for bar 3. Player 1 performs a repeated motif on the piano with both hands in C position, created through the use of unison fingering – both hands play 1-3-2-4-3-5 (thumb, middle, index, fourth, middle, little finger), which is a common exercise pattern for elementary level pianists. This creates contrary motion playing and polyphonic texture as a result of the simultaneous opposition in pitch, i.e. the left hand pitch is the reverse of the right. This duet is distinctly 'major' in tonality contrasting with the 'minor' implications of Player 2's improvisation, which begins in bar 4.



Compositional Product Section showing the opening 4 bars for Case Study 2 tutored

Player 2's piano solo (bar 4) begins on the same pitch 'C' that the recorder and piano have finished on and uses pitches between A and E a 5th above, with C♮, indicating a key of A minor. The opening motif is identified as 'Z1' on the score. The initial rhythm partially imitates the piano rhythm of player 1, demonstrating zygonic relationships of duration, and is imitated again in bars 5-6 but at a major

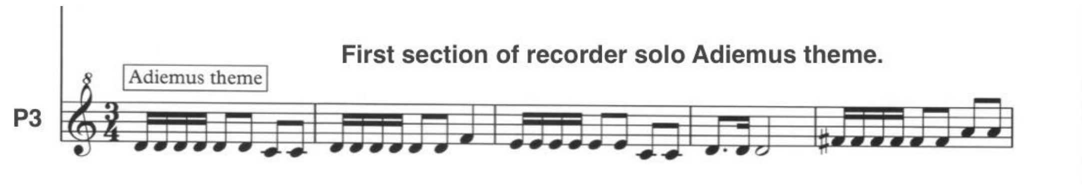
3rd higher and across 2 bars as a result of a crotchet rest on beat 1 of bar 5 – see below.



Compositional Product Section showing bars 5-9 for piano player 2, Case Study 2 tutored

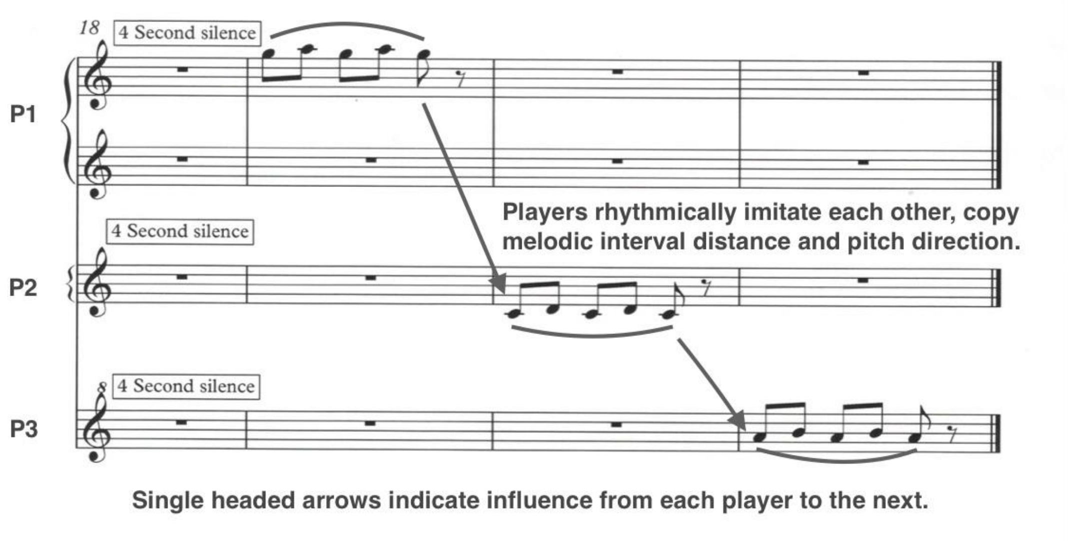
The rhythm moves in quavers, employs syncopation (bar 8), emphasised by the accent placed on pitch C in bar 8 (see blue accent in excerpt above) and gives a sense of 3/4 time. This is the only improvised part of the performance, deriving its pitch choices and rhythmic structure from material previously played. In terms of zygonic theory, this phrase uses networks of pitch groups to develop variations.

Following this piano solo, player 3 commences her recorder solo using the 'Adiemus' theme tune from composer Karl Jenkins' work 'Songs of Sanctuary'. This is unexpected as it bears little relation to any of the previous musical ideas.



Compositional Product Sections showing Adiemus theme played by recorder in Case Study 2 tutored

At bar 18 there is a 4 second silence then each member of the group rhythmically imitates the other in turn using a quaver motif at different pitches, finishing with the recorder and concluding the piece at bar 21 on the note A.



Compositional Product Section showing rhythmic imitation for the final 3 bars Case Study 2 tutored

Unlike their Cage response (see appendices case study A8), which is mostly played together, this piece is broken into sections with solos for each group member. Although it opens with a duet, the piano in bars 1-3 is much louder than the recorder, which can barely be heard. Whilst the piano sections relate in part to each other in their use of pitch and rhythm, the recorder solo appears musically autonomous.

Part 2: Non-Tutored - Classical Stimulus

(Performance length: 46 seconds) Player 4 was absent for this session.

This group consisted of 3 players on diatonic xylophone, djembe and castanets. They composed a piece in 3 sections, creating a sense of derivation using canonic imitation. Each section is examined separately.

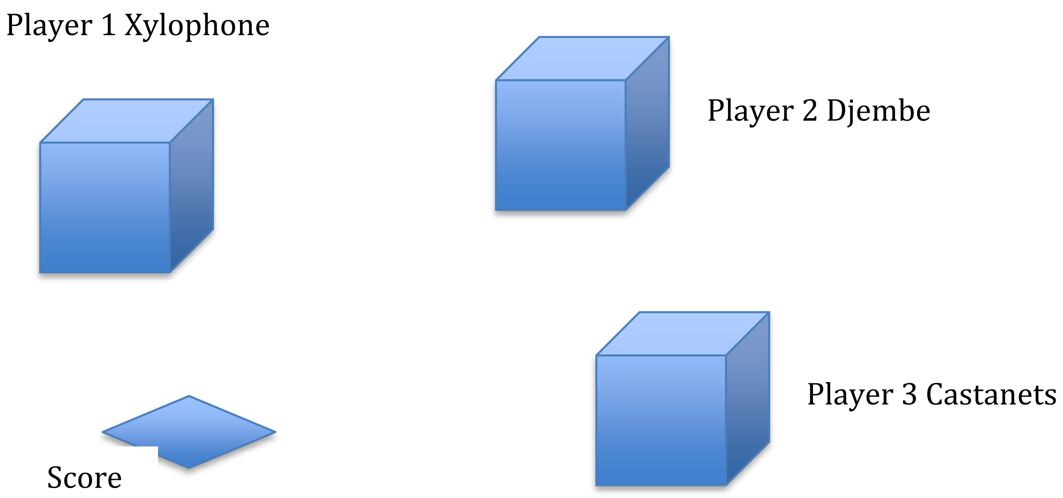
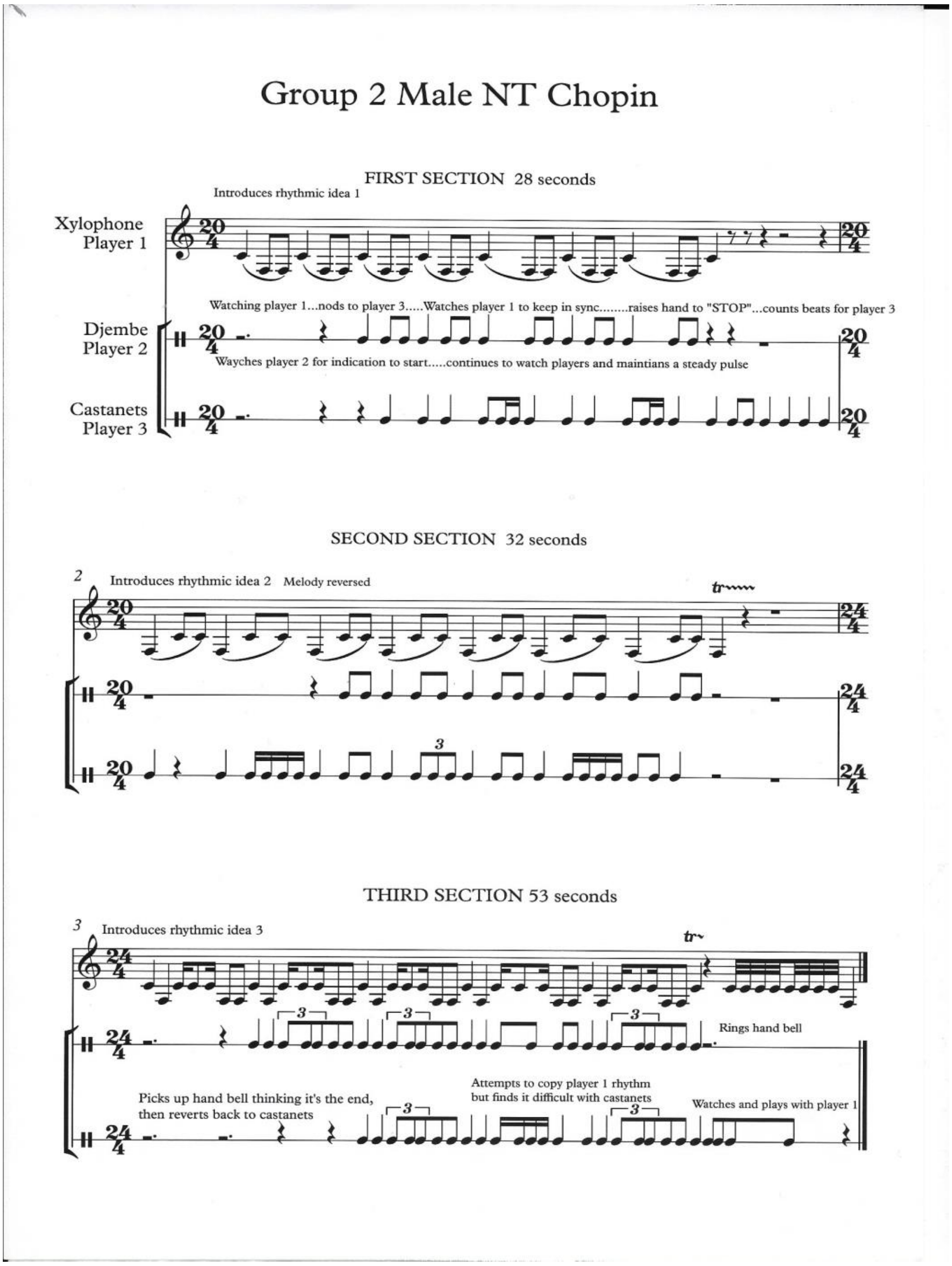


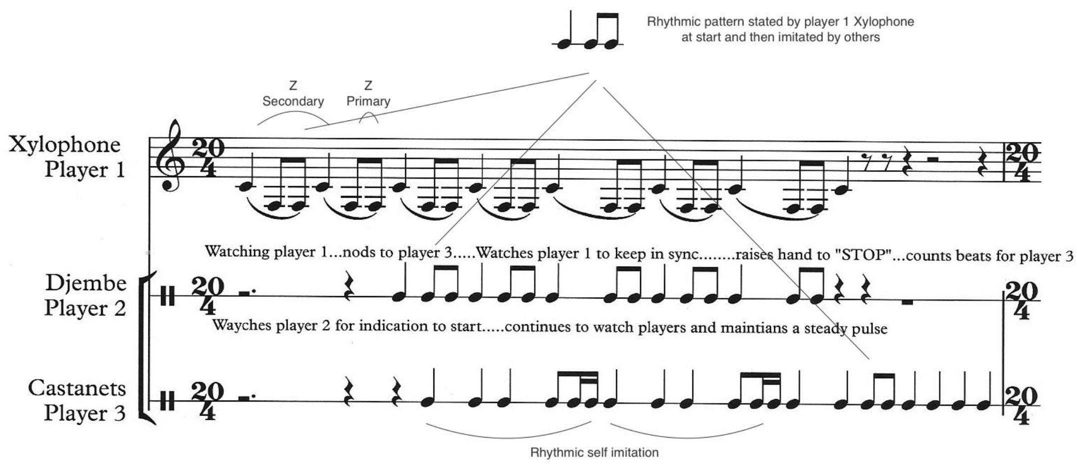
Diagram 4: Positioning of participants Case Study 2 non-tutored:



Complete Compositional Product for Case Study 2 non-tutored

Analytical Overview for Case Study 2 non-tutored

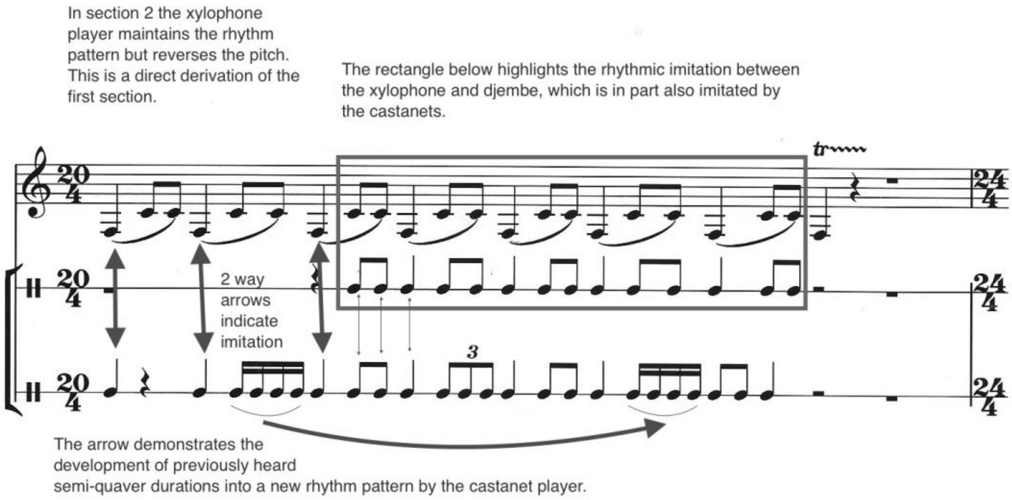
The 3 sections of this piece increase in length each time. Player 1 leads the group within this performance, verbally counting everyone in and using hand gesticulations to control the speed and presence of sounds. *(NB an error occurred in* *the notation of this piece whereby Agogo Bells were scored under the name Xylophone. In the video it is clear Agogo bells are being used)*



Compositional Product Section 1 Case Study 2 non-tutored:

Section 1: Player 1 (having been counted in silently by player 2) initiates this performance, stating a rhythmic pattern on pitched agogo bells (moving from high C to F a 5th below), which is imitated by player 2 on the djembe. Player 3 watches player 1 for an indication of when to start and enters section 1 on beat 6 with a related but slightly different rhythmic idea. All 3 players remain in sync with each other and after 7 repetitions of this rhythmic idea, player 1 says ‘stop’ at which point he and player 2 drop out whilst player 3 continues with castanets. This reduction in texture continues for 6 beats, effectively providing a transition between section 1 and 2.

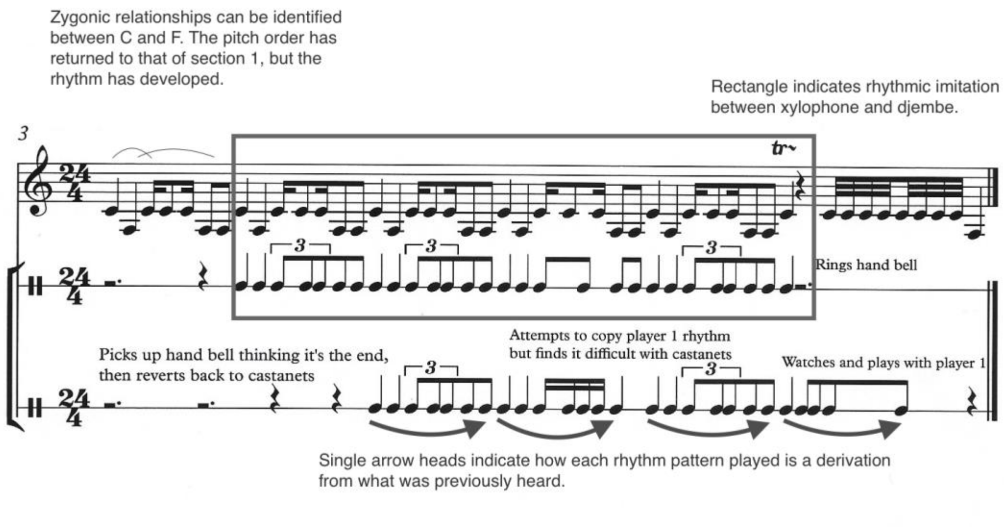
This group intently watch each other for the duration of the performance. The opening rhythm is sustained by the xylophone and the overhanging brackets ‘Z secondary’ and ‘Z Primary’ examples of secondary zygonic relationships of pitch with the repeated but separated use of pitch C and primary zygonic relationships of pitch with the direct repeat of F a 5th below are identified. This trio of durations (isolated at the top of the image) creates a repetitive motif, rhythmically imitated in all parts. The castanet player engages in a similar rhythm, which derives from what has previously been heard. He fills the gap between section 1 and 2 with crotchet beats, maintaining the sense of metre and providing textural contrast.



Compositional Product Section part 2 of the piece for Case Study 2 non-tutored

Section 2 of this piece demonstrates a development of ideas and a trill is used to transition between this and the final section. Player 3 (castanets) continues to follow a speed gesticulated by player 1 for 4 pulse counts at which point player 2 begins the second section with the same rhythm as section 1 but with the pitch order of the agogo bells reversed. Player 3 continues to part imitate, part extend his rhythm using semi-quaver beat values and a triplet. Player 1 imitates the agogo bell rhythm on the djembe and after 7 repetitions indicates to player 3 to stop. Player 2 continues with the agogo bells creating a trilling effect for 2 pulse counts (through tapping the beater inside the end of the lower pitched bell tube).

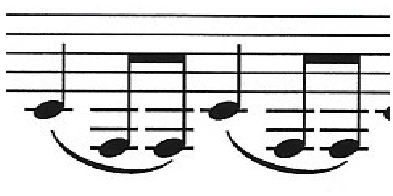
The third and final section of this piece shows a further development of previously used ideas for all three players.



Compositional Product Section part 3 for Case Study 2 non-tutored

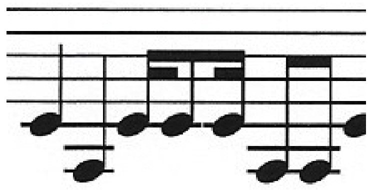
Section 3: After 2 beats of silence (counted by Player 1) player 2 commences the 3rd and longest section in which the rhythmic pattern used is heard as a variation of the previous 2 ideas and played at double the speed. Player 1 follows for 4 full repetitions using triplets. Player 1 and 2 lean directly towards each other and engage with each other intently for the duration of this section. They crescendo towards the end; player 2 makes 6 repetitions of his pattern, followed by a short triumphant trill, a moment of silence, then finishing with 8 rapid repetitions on the higher pitched bell before banging the lower pitch forcefully. Player 3 struggles to imitate the rhythm in this section due to the physical challenge of tapping castanets at speed. At the end of this section he switches instruments and rings a loud bell simultaneously with player 2 for the final 3 beats to indicate the end.

The development of the xylophones' motifs in Case Study 2 non-tutored is shown below:



Excerpt 16: First motif using a middle C pitch to an F below for the xylophone part in Case Study 2 non-tutored:

Excerpt 17: Second motif as a reversed imitation of the first in the xylophone part of Case Study 2 non-tutored:



Excerpt 18: Third development of the motif including semi-quavers for the xylophone part in Case Study 2 non-tutored:

The xylophone player opens each section of the piece with a motif, which is responded to first through the imitative sounds of the djembe and secondly by the castanet player. The logical development of the opening idea using canon leads to musical coherence through the course of the piece.

Sounds of Intent (Composing) Analysis for Case Study 2

Research question 1 for Case Study 2:

1) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of using *experimental or traditional Western classical musical stimuli on the coherence individual contributions to composing?*

This will be answered in 2 parts:

1a) Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

1b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

SoI Composing Analysis Proactive Composing (PC) Tutored

SoI Category and Criteria	**Score given (Scale 0-5)**	**Reason for score**
PC3 Imitates own sounds	5	When playing.
PC4 Imitates own motifs	2	Two motifs identified – piano opening and bar 19.
PC5 Uses scales and metrical patterns	2	Two patterns identified.
PC6 Performs expressively	1	Little awareness of any expression.

Table 2.1 Tutored: Proactive Composing Category score explanation for Piano 1

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistent self imitation.
PC4 Imitates own motifs	2	Four motifs identified, 2 of which are imitated.
PC5 Uses scales and metrical patterns	5	Multiple patterns used.
PC6 Performs expressively	2	Sense of phrasing with piano solo.

Table 2.2 Tutored: Proactive Composing Category score explanation for Piano 2

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistent imitation of own sounds.
PC4 Imitates own motifs	2	Difficult to judge as one motif identified in bar 3, then repetition of Karl Jenkins motif, which is not her composition.
PC5 Uses scales and metrical patterns	5	Multiple use of patterns during recorder solo.
PC6 Performs expressively	1	Good tone and technical control of recorder, no dynamics used.

Table 2.3 Tutored: Proactive Composing Category score explanation for Recorder

SoI Composing Analysis Proactive Composing (PC) Non-Tutored

SoI Category (Composing) and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuous imitation using rhythm and pitch (see Image)
PC4 Imitates own motifs	5	Continuous self-imitation of 3 related motifs and 2 uses of trills
PC5 Uses scales and metrical patterns	3	Uses 3 identifiable patterns
PC6 Performs expressively	1	Loudly and with force

Table 2.4 Non-Tutored: Proactive Composing Category score explanation for Xylophone

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Self imitation continuous
PC4 Imitates own motifs	5	3 motifs identified with constant repetition
PC5 Uses scales and metrical patterns	3	3 patterns identified
PC6 Performs expressively	1	Same dynamic and speed throughout

Table 2.5 Non-Tutored: Proactive Composing Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuously.
PC4 Imitates own motifs	5	Continuously.
PC5 Uses scales and metrical patterns	3	3 can be identified, one in each section.
PC6 Performs expressively	1	Accents are placed on the first beat of each rhythmic phrase.

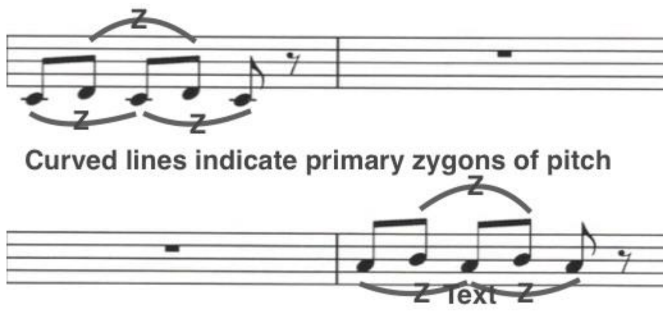
Table 2.6 Non-Tutored: Proactive Composing Category score explanation for Castanets

Response to Research Question 1a for Case Study 2:

Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

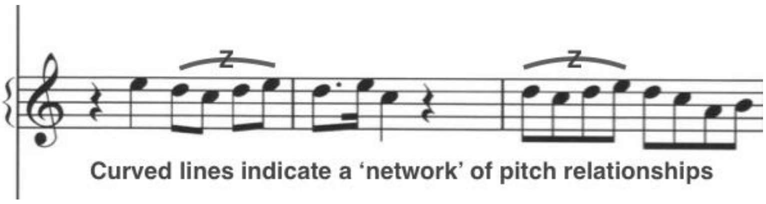
Tutored participants in this example demonstrate individual understanding of their own musical contributions to the performance. This can be seen in the presence of primary and secondary zygonic relationships of pitch and rhythm occurring within each part.

Excerpt 19: Primary zygons of pitch in the Case Study 2 tutored recorder solo



Excerpt 20: Primary zygons of pitch in the final motif for Case Study 2 tutored

Musical understanding is also demonstrated within groups of pitch, what zygonic theory pertains to be 'networks' of relationships between musical events. (These networks consist of notes within a group of three or more, that most likely derive from others previously heard, but which do not necessarily occur in exact imitation).



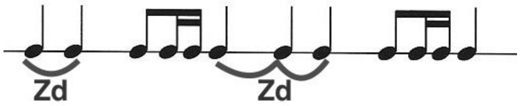
Excerpt 21: Networks of pitch relationships in the Case Study 2 tutored piano improvisation

Excerpt 22: Networks of pitch relationships for Case Study 2 in the opening tutored piano part; curved lines indicate the pitch group, 'Z1' identifies the pitch group as a first idea and 'Z1r' indicates the reverse of the pitch group

Non-tutored participants also demonstrated the same understanding, although their use of non-pitched instruments limited the examples of pitch relationships and their use of pitch patterns was simpler, which is conceivable given the agogo bells only have two pitches.

Excerpt 23: Primary zygons of pitch in the non-tutored agogo bell part for Case Study 2 non-tutored

Zygonic relationships of duration in repeated rhythmic phrases serve to exemplify individual musical understanding in the non-pitched parts.



Excerpt 24: Primary zygons of duration indicated as 'Zd' in the castanet part for Case Study 2 non-tutored

For both groups' individuals have contributed at an equally musically complex level within this response, but their creative products are very different. For non-tutored participants, in comparison to their first Experimental response (see case study 6 part 2) the Classical stimulus appears to have prompted increased development of musical structure and a greater variety of ideas for each individual, however this could also be due to the repeat of the activity rather than the stimulus. For the tutored group, this response is less coherent than their first Experimental product (see appendices case study A8), possibly due to them using pitched instruments. In their first task attempt they used percussion and the response is more imitative. Using instruments in this example does not appear to have helped them work more creatively, even though it is the second repeat of the task. In summary, the impact of the stimulus on the level of coherence of children's individual contributions to group composing in this example is minimal.

Response to Research Question 1b for Case Study 2:

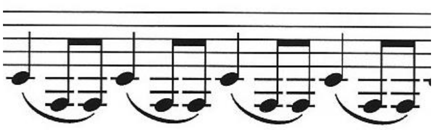
Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

Instrumental tuition appears to have assisted tutored individual contributions in this performance, as two participants are using pre-learnt material and all group members are using instruments that they take lessons on (piano and recorder). The opening piano part is very similar to many piano teaching book exercises and the recorder part is the opening solo from Karl Jenkins piece Adiemus. The resulting piece sounds as three detached solos, with an unrelated motif added at the end.

Excerpt 25: Tutored piano improvisation and recorder solo together to clarify the lack of musical relationships and imitation in Case Study 2 tutored

Visually, the lack of similarity in these two solos is evident; whilst the piano uses rests, dotted rhythms and does not repeat any note twice in a row, the recorder solo contains no rests and uses a repetitive rhythmic pattern and repetitive pitch. The one similarity is that they are played in the same pitch range (the recorder sounds an octave higher than written).

Non-tutored participants demonstrate a simpler level of technically complexity to the tutored group in terms of use of instruments, mostly due to using a two pitched agogo bell and non-pitched castanets and djembe. However, their response is more musically coherent than the tutored example, given that the primary and secondary zygonic relationships of pitch and rhythm and inter-onset intervals are frequently used linking the music from the opening to the end.



Excerpt 26: Opening non-tutored agogo bell motif in Case Study 2 non-tutored

Excerpt 27: Non-tutored agogo bell motif at the end of the piece in Case Study 2 non-tutored

Here the similarities between the motif at the beginning and the motif at the end are clear, but with only two notes to choose from, it is easier to create an imitative pattern.

To summarise, the individual coherence of all participants' musical contributions is evident in this example, but the non-tutored participants have scored slightly higher due to more examples of self-imitation, raising the scores in category Proactive Composing level 4. Although tutored participants did create motifs, they were not imitated at the same frequency as non-tutored. The recorder players' contribution was difficult to judge because she did not create anything new, questioning her understanding of her contributed material, as it was not original. So it can be concluded that instrumental tuition did impact player's individual musical contributions in this example as tutored participants appeared restricted by the idea of 'solo' contributions.

Research question 2 for Case Study 2:

2) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on children's use of stimulus material during group composing?

This will be answered in 2 parts:

2a) In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

2b) In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on children's use of stimulus material during group composing?

SoI Composing Analysis Proactive using the Stimulus (PS) Tutored

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Piano is the same instrument, uses repeated quaver motion.
PS4 Imitates motifs from stimulus	2	Groups of 4 quavers combined with crotchets, vaguely similar to Chopin's left hand repetitive quaver motion.
PS5 Uses scales and metrical patterns and structure from stimulus	1	Pattern used is not reminiscent of Chopin – no use of dotted rhythm or long durations such as minims. Opening pattern is not heard again so no repetition of ideas. Tonality is major as is Chopin
PS6 Imitates expression from performance of stimulus	0	None identified – plays loudly without pedal.

Table 2.7 Tutored: Proactive Using the Stimulus Category score explanation Piano 1

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Uses piano so same instrument as heard in stimulus.
PS4 Imitates motifs from stimulus	3	Uses dotted rhythms, uses rests, uses long melodic phrasing as does Chopin.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Variation on melodic ideas as in the Chopin. Groups of quavers, dotted rhythms, crotchets.
PS6 Imitates expression from performance of stimulus	1	Some awareness of phrasing.

Table 2.8 Tutored: Proactive Using the Stimulus Category score explanation Piano 2

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Repeated use of quavers.
PS4 Imitates motifs from stimulus	0	None evident.
PS5 Uses scales and metrical patterns and structure from stimulus	1	Chopin's melody is full of rising and falling melodic intervals, is major and in 4/4 time. This recorder part is in 3/4 time and notes move mostly in steps. They both share major tonality.
PS6 Imitates expression from performance of stimulus	2	In the form of being a distinct melodic line, and quiet dynamic.

Table 2.9 Tutored: Proactive Using the Stimulus Category score explanation Recorder

SoI Composing Analysis Proactive using the Stimulus (PS) Non-tutored

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Use of repeated rhythm using quaver pairs
PS4 Imitates motifs from stimulus	2	Use of repeated 5th intervals as in the left hand opening of the prelude.
PS5 Uses scales and metrical patterns and structure from stimulus	3	Use of trills and a repeated pattern, which is then reversed and rhythmically embellished. Chopin uses triplets to embellish the right hand melody within the opening section of the prelude.
PS6 Imitates expression from performance of stimulus	0	No – this performance is loud, forceful and fast.

Table 2.10 Non-Tutored: Proactive Using the Stimulus Category score explanation for Xylophone

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Accompanies melody using quaver pairs as in prelude left hand part.
PS4 Imitates motifs from stimulus	2	Repeated use of rhythm patterns as in stimulus
PS5 Uses scales and metrical patterns and structure from stimulus	3	Chopin uses ternary form, repeated rhythmic motifs and quaver pairs.
PS6 Imitates expression from performance of stimulus	0	This piece is played fast and loud unlike the Prelude

Table 2.11 Non-Tutored: Proactive Using the Stimulus Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Use of semi-quavers and triplets.
PS4 Imitates motifs from stimulus	2	Use of semi-quavers and triplets – it is not possible to relate pitch as castanets are un-pitched percussion.
PS5 Uses scales and metrical patterns and structure from stimulus	3	Ternary form, rhythmic similarities.
PS6 Imitates expression from performance of stimulus	0	The prelude is gentle, whereas this performance was energetic and forceful.

Table 2.12 Non-Tutored: Proactive Using the Stimulus Category score explanation for Castanets

Response to Research Question 2a for Case Study 2:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

For these tutored participants, the Chopin stimulus has resulted in a less imitative response than their Cage response (see appendix, case study A8). This could be down to the stimulus, or because participants are using their own instruments, or both factors. Non-tutored participants show more identifiable relationships between various musical elements of the Prelude and their composition. Whilst tutored participants have used the same instrument as the stimulus (piano), they have used fewer musical elements of the stimulus. They present three different sets of ideas, which – as is exemplified in the scores given – show little relation to Chopin, therefore their scores for categories Proactive using the Stimulus levels 3,4 and 5 are lower than non-tutored. Conversely, the non-tutored participants, although not using the style, speed or complex harmony of the stimulus, have inadvertently used more of the musical factors such as triplets, dotted rhythms and melody with accompaniment structure. Additionally, non-tutored scores for expression (category PS6) are zero whilst tutored scores for expression (PS6) accumulate to a total of 5.

In this example, non-tutored participants have scored higher in categories Proactive using the Stimulus levels 3,4 and 5 as they produced more musical material to work from and therefore more examples and did not use pre-learnt music.

Response to Research Question 2b for Case Study 2:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on children's use of stimulus material during group composing?

Tutored participants have used their own instruments, which could be what has encouraged them, due to the association of experiential learning with their instrument, to use pre-learnt material. Non-tutored participants demonstrate greater development of ideas, but their ideas musically are simpler in comparison to the tutored group (e.g. they do not use complex pitched motifs like piano player 2). Thus, receiving or not receiving instrumental lessons can be identified as having a potential impact on children's manipulation of stimulus material in this example.

Research Question 3 for Case Study 2:

3) In 9-11-year-old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of *experiencing experimental or traditional Western classical musical stimuli on the structure and content of group compositions?*

This will be answered in 2 parts:

3a) Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's group compositions?

3b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's group compositions?

SoI Composing Analysis Evaluating the Product (EP) Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	1	Opening piano solo creates an introduction, but there is no further reference to this idea at any other point during the piece by this player, thus it does no emerge as a structural feature.
EP3b Manipulates qualities of sounds to create particular stated effects	1	Plays piano without pedal at same dynamic for the three opening bars and at the end in bar 18. Uses a bar of silence.
EP4a Repetition of motifs as a structural feature of the piece	2	Two motifs identified, one of which is repeated 3 times at the beginning.
EP4b Uses motifs to create particular effects	2	Motif 1 is used as an opening, motif 2 is used to initiate a canon at the end.
EP5a Uses scales, metrical patterns and form to create coherent structure	1	Patterns used contribute at a basic level, (beginning and end) but do not relate to each other.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	Opening pattern is followed in part by Piano 2 giving a sense of narrative to the first 9 bars of the piece.
EP6a Deliberately uses expressive effects to articulate structure	1	None identified, apart from setting speed and using high pitch.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Use of silence in bar 18.

Table 2.13 Tutored: Proactive Evaluating the Product Category score explanation for Piano 1

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	3	Piano solo develops using repetition of pitch and rhythms from bar 4-10.
EP3b Manipulates qualities of sounds to create particular stated effects	2	Uses subtle dynamics on the keyboard to convey phrasing.
EP4a Repetition of motifs as a structural feature of the piece	3	Motifs are developed as three variations of the original idea. This does not appear again for the rest of the piece.
EP4b Uses motifs to create particular effects	1	As a solo line.
EP5a Uses scales, metrical patterns and form to create coherent structure	3	Within the bars of the solo there is structure through the use of patterns, but this contributes little to overall structure.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	Piano solo succeeds in continuing the narrative already stated by Piano 1, but this narrative is then lost from bar 10 onwards.
EP6a Deliberately uses expressive effects to articulate structure	1	Musical playing during solo and follows on from last pitch of previous solo.
EP6b Deliberately uses conventional expressive devices to convey particular effects	2	Light and shade with dynamics.

Table 2.14 Tutored: Proactive Evaluating the Product Category score explanation for Piano 2

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	2	There is repetition, but it only serves as a structural framework for the recorder solo, not as a structural feature of the composition as a whole.
EP3b Manipulates qualities of sounds to create particular stated effects	1	Re-creates the famous solo, but with no diversion from the original.
EP4a Repetition of motifs as a structural feature of the piece	2	Difficult to judge when the music is pre-written; as far as the overall piece is concerned this solo sounds unrelated therefore the repetition within the solo is not a structural feature.
EP4b Uses motifs to create particular effects	1	To have the effect of giving the audience something they know.
EP5a Uses scales, metrical patterns and form to create coherent structure	1	Within the solo itself, but as an overall structural device, no.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	1	The patterns used do not relate in time or tonality (Adiemus is in D major) to what was previously heard, therefore narrative cannot be considered meaningful.
EP6a Deliberately uses expressive effects to articulate structure	1	Uses phrasing during solo.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Uses one bar of silence (bar 18)

Table 2.15 Tutored: Proactive Evaluating the Product Category score explanation for Recorder

SoI Composing Analysis Evaluating the Product (EP) Non-Tutored

SoI (Composing) Category and Criteria	**Score Given (Scale 0-5)**	**Reason for Score**
EP3a Repetition of sound as a structural feature	5	The agogo bell patterns open each section of the performance
EP3b Manipulates qualities of sounds to create particular stated effects	3	Accents are placed on the crotchets of motifs 1 and 2 and on beats 1 and 3 of motif 3. Trills are used at the end of sections 2 and 3 to mark a change in sound.
EP4a Repetition of motifs as a structural feature of the piece	5	Motif 1 and 2 repeat 7 times and motif 3 repeats 6, thus each section of the piece is the same length.
EP4b Uses motifs to create particular effects	3	The 3rd motif is played with increasing energy climaxing to a loud trill to finish
EP5a Uses scales, metrical patterns and form to create coherent structure	2	The repeated pattern is simple and there is no use of scales as a structural feature. The pattern used imitates the rhythm exactly but changes pitch in sections 1 and 2. The third section pattern develops to become more rhythmically complex
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	The development of the pattern used creates a narrative of increasing complexity and density of texture
EP6a Deliberately uses expressive effects to articulate structure	0	No use of dynamics or tempo change or any other obvious expression.
EP6b Deliberately uses conventional expressive devices to convey particular effects	0	Again no evidence although it could be argued that accents are an expressive device.

Table 2.16 Non-Tutored: Proactive Evaluating the Product Category score explanation for Agogo (scored as Xylophone)

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	Continuous
EP3b Manipulates qualities of sounds to create particular stated effects	3	Changes timbre of drum through using the edge, centre and side of instrument.
EP4a Repetition of motifs as a structural feature of the piece	5	Uses motifs to echo and enhance xylophone part continuously.
EP4b Uses motifs to create particular effects	3	The change in each motif marks the change in each section.
EP5a Uses scales, metrical patterns and form to create coherent structure	3	Within the 3 sections and 3 different rhythms
EP5b Uses scales, metrical patterns and form to create meaningful narratives	3	The rhythmic motifs link each section and create the structure of the narrative
EP6a Deliberately uses expressive effects to articulate structure	1	Not really – the change in timbre seems un-intentional as this player is more concerned with directing the rest of the group.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Possible deliberation in his direction of others to play in between sections (e.g. 'Stop') but musically none evident.

Table 2.17 Non-Tutored: Proactive Evaluating the Product Category score explanation for Djembe Player 2

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	The castanet uses different values to the other parts, but they work within the overall structure.
EP3b Manipulates qualities of sounds to create particular stated effects	1	He finds using the castanets challenging (evident from video in his difficulties using them) but carefully places the crotchet beats heard at the end of section 1.
EP4a Repetition of motifs as a structural feature of the piece	5	Use of repeated rhythm patterns that do not directly imitate but complement the movement of the other parts, for example placing semi-quavers in the space of crotchets in section1.
EP4b Uses motifs to create particular effects	3	3 motifs are identified, which work amongst the surrounding rhythms.
EP5a Uses scales, metrical patterns and form to create coherent structure	3	Part is clearly understood in terms of what to play and when with particular rhythm patterns used at specific points. E.g. end of section 1 and entry to section 2.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	He joins the music as the third member of the canon in sections 1 and 3 and leads the pulse into section 2.
EP6a Deliberately uses expressive effects to articulate structure	0	None evident
EP6b Deliberately uses conventional expressive devices to convey particular effects	0	None evident

Table 2.18 Non-Tutored: Proactive Evaluating the Product Category score explanation for Castanets

Response to Research Question 3a for Case Study 2:

Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's group compositions?

For the tutored group, the stimulus has possibly impacted on the participants' choice to use pre-learnt music as a large portion of the compositional content. This could be due to difficulty generating and /or developing new ideas (see scores for categories Evaluating the Product levels 3a, 4a and 5a), or difficulty imitating the stimulus, or issues with playing together, as all parts are presented as solos. Therefore, whilst the stimulus may have had some effect on the structure and content of this response, this impact can be considered small and is demonstrated in the low scores.

For non-tutored participants, the structure and content of this compositional response is more logically organised, which is imitative of the Classical stimulus, and resulted in higher scores (e.g. agogo bell total Evaluating the Product score of 20). This stimulus has produced a structurally more complex response than either Experimental stimuli response for this group (see case study 8 part 2 and appendices case study 11A), possibly due to the inclusion of a pitched instrument offering more scope for creativity. It can be speculated that the Classical stimulus has led to an increase of musical ideas in comparison to this groups' first Experimental response, and there are examples of motivic development (see category scores Evaluating the Product 4a), rhythmic imitation (see category scores Evaluating the Product levels 4b and 5a) and frequent examples of primary and secondary zygons of pitch and rhythm. In summary, the stimulus has had more impact for the non-tutored group than the tutored group in terms of compositional content and structure, within this example.

Response to Research Question 3b for Case Study 2:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's group compositions?

For the tutored group, instrumental tuition could be related to the lack of development of musical structure within this piece, due to participant's playing pre-learnt material on their instruments. Using segments of known material in this was has resulted in isolated musical solos and participants do not play together at any point, apart from for a few beats between piano 1 and recorder in bars 1 and 3. The recorder part in particular has the effect of dismantling aurally the relationships that had occurred between the two pianists during bars 1-10, due to its different phrasing, rhythm and independent melodic structure. There is a sense of musical connectivity in the last phrase, where participants do imitate each other, but it is not enough to form a convincing musical narrative.

Comparably, non-tutored participants have experimented and improvised with the instruments they have, regardless of their lack of understanding of what they have composed; i.e. telling them they are using dotted rhythms and triplets would carry little meaning, but they have used them with *musical* understanding within their performance.

Thus, there is an impact of instrumental tuition on the structure and content of the creative products of these groups, but it is vastly different for each.

Research question 4:

4) *In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on children's capacity to compose coherently with others in a group?*

This will be answered in 2 parts:

4a) Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in small groups?

4b) Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in small groups?

SoI Composing Analysis Interactive Composing (IC) Tutored

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	2	States an opening phrase that is part imitated by the recorder and then part imitated by piano 2.
IC3b Imitation of others' sounds	2	The instrument used is shared with Piano 2 and the quaver crotchet durations are used by piano 2 and the recorder
IC4a Deliberately provides motifs to 'engage' others	2	The opening motif used by Piano 2 to create her solo, the motif at then end, which is copied by both other players.
IC4b Imitates others' motifs	2	With the recorder in part during the first 3 bars. Imitation of last motif used at the end.
IC5a Deliberately provides scales and metrical patterns for others to imitate	3	Patterns used in opening are used for development of solo by piano 2. Final motif is imitated rhythmically by both other players.
IC5b Imitates others' use of scales and metrical patterns	2	Some relationships between use of durations and pitch as shown in Compositional Product section.
IC6a Deliberately plays expressively through the playing /performing of the composition	0	No expression evident; plays loudly at the beginning and end.
IC6b Imitates others' expression whilst playing	1	Other pianist is more expressive but there is similarity between recorder volume and piano 1.

Table 2.19 Tutored: Interactive Composing (IC) category score explanation for Piano 1

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	2	Pitch choices and note values.
IC3b Imitation of others' sounds	2	Imitates other pianist.
IC4a Deliberately provides motifs to 'engage' others	3	Three motifs identified, but they are not imitated in a recognisable format by the other 2 players.
IC4b Imitates others' motifs	1	Imitates part of the opening piano motif.
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	Provides patterns, but they are not imitated, except in the case of some note values.
IC5b Imitates others' use of scales and metrical patterns	2	Partial imitation of piano 1 in the opening 3 bars.
IC6a Deliberately plays expressively through the playing /performing of the composition	2	Sense of expression and phrasing.
IC6b Imitates others' expression whilst playing	1	Not really, they both play loudly and without accent or shape to phrasing.

Table 2.20 Tutored: Interactive Composing (IC) category score explanation for Piano 2

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	1	Sounds made are not imitated by other players.
IC3b Imitation of others' sounds	1	An attempt to imitate Piano 1 during the opening phrase.
IC4a Deliberately provides motifs to 'engage' others	2	Motifs provided are pre-learnt and others do not follow with a response.
IC4b Imitates others' motifs	1	Some durational relationships from piano 1 and 2 within the recorder part.
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	Scales and patterns provided are not imitated at any other point.
IC5b Imitates others' use of scales and metrical patterns	1	Only in some of the durational values such as pairs of quavers, use of a dotted rhythm as in Piano 1's improvisation.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Musical playing in terms of skill at the instrument and sense of phrasing with the solo.
IC6b Imitates others' expression whilst playing	1	Loud as is Piano 1.

Table 2.21 Tutored: Interactive Composing (IC) category score explanation for Recorder

SoI Composing Analysis Interactive Composing (IC) Non-Tutored

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	5	The xylophone states the opening sound heard followed by the djembe who enters with an exact rhythmic imitation.
IC3b Imitation of others' sounds	5	All three players are imitatively interacting, and the introduction of semi-quavers by the castanet player leading to the inclusion of semi-quavers by the xylophone in the final sections is one example.
IC4a Deliberately provides motifs to 'engage' others	5	Continuously – playing directly opposite each other the motifs the xylophone provides are absorbed and then re-created by his group members.
IC4b Imitates others' motifs	5	Again, this is a continuous process during performance.
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	The 2 patterns are simple, and the other players go beyond what the xylophone gives them.
IC5b Imitates others' use of scales and metrical patterns	5	Yes, in terms of the attempt at a new rhythm in the final section and the filling of silence at the end of section 2 which is imitative of the djembe player who fills the silence at the end of section 1
IC6a Deliberately plays expressively through the playing /performing of the composition	0	No – just loud!
IC6b Imitates others' expression whilst playing	5	They are all playing loudly.

Table 2.22 Non-Tutored: Interactive Composing (IC) category score explanation for Xylophone

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	5	Continuously for the castanet
IC3b Imitation of others' sounds	5	Continuously from the xylophone
IC4a Deliberately provides motifs to 'engage' others	5	In section 3 this is clear between himself and the castanet player.
IC4b Imitates others' motifs	2	In sections 1 and 2 he imitates the xylophone part
IC5a Deliberately provides scales and metrical patterns for others to imitate	3	Particularly noticeable in section 3 whereby he actively engages the castanet player and in section 1 where he conducts the castanets crotchet beats.
IC5b Imitates others' use of scales and metrical patterns	5	Continuously.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Deliberate force to his playing.
IC6b Imitates others' expression whilst playing	5	They are all imitating each other in terms of dynamic and tempo

Table 2.23 Non-Tutored: 'Interactive Composing' (IC) category score explanation for Djembe

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	2	At the beginning of section 2 he performs a different rhythm to the other players but it is not imitated. At other times he is imitating.
IC3b Imitation of others' sounds	5	He is directed by the djembe player as to what to play
IC4a Deliberately provides motifs to 'engage' others	2	In section 2 he uses a different rhythm pattern to the other players and introduces triplets, which are then used by the djembe in section 3.
IC4b Imitates others' motifs	5	Directly in all three sections.
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	Yes in the form of rhythm patterns introducing semi-quavers in section 1 and 2, which are then used by both the xylophone and djembe in section 3.
IC5b Imitates others' use of scales and metrical patterns	5	Throughout the piece.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	In order to imitate.
IC6b Imitates others' expression whilst playing	5	Confidence in the style of his performance is gained through copying the other players'.

Table 2.24 Non-Tutored: Interactive Composing (IC) category score explanation for Castanets

Response to Research Question 4a for Case Study 2:

Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in small groups?

For the tutored group in this example the Classical stimulus cannot be identified as increasing levels of collaboration and has resulted in less musical imitation for this group compared to their first response to the Experimental stimulus. In this example within the Interactive Composing category the tutored scores are less than half of the non-tutored (average Interactive Composing tutored score 2, average Interactive Composing non-tutored score 4.8), because there is so little musical imitation between the parts.

Comparably, this non-tutored group scored highly for category Interactive Composing in two of their task responses and lower in the first one (see case study 6 part 2 and appendices case study 11A). This similarity in category Interactive Composing scores across both groups for both stimuli suggests that their approach to composing with each other was not necessarily affected by the style of stimulus.

Response to Research Question 4b for Case Study 2:

Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in small groups?

Within this example, for tutored participants, the musical communication within this piece is fragmented. Their instrumental knowledge is demonstrated in their technical use of the instruments.

The non-tutored group use imitation and canon to build and develop musical ideas. Textural contrast is achieved through the introduction of instruments at different points and the sections of the piece are different but related through repetitive musical events that derive from one another. The musical communication between the players is key to the success of this piece, because it has resulted in frequent and clearly logical musical relationships, even though the content is technically simpler.

In summary, within this example, being tutored or non-tutored has had an impact on participants' levels of collaboration due to the large difference in Interactive Composing scores between the two groups as a result of the higher frequency of examples of zygonic relationships in the non-tutored participants creative product.

5.3.3 Case Study 3 Low Scoring Classical

Part 1: Tutored (Performance length: 30 seconds)

Diagram 5 shows the positioning of participants for case study 3 tutored:

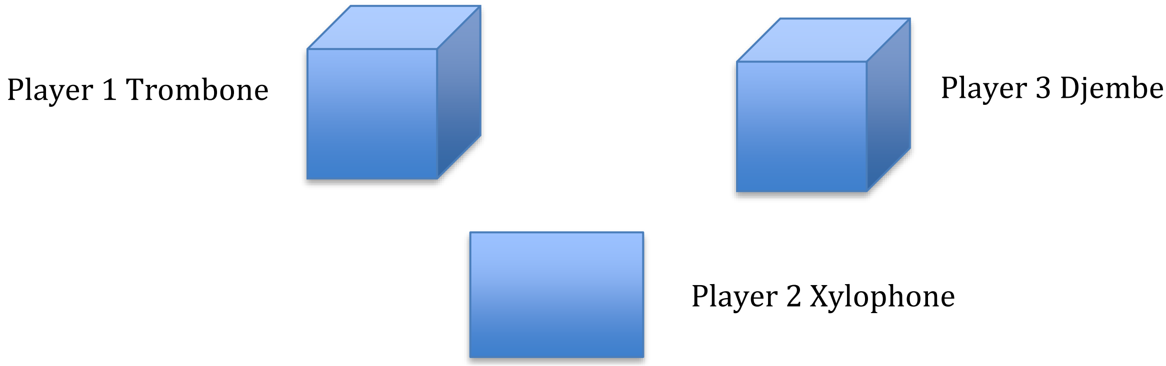


Diagram 5 Positioning of participants Case Study 3 tutored

Players 1 and 3 sit up on chairs whilst Player 2 sits on the floor directly in front of them with the xylophone in front of him.

Complete Compositional Product for Case Study 3 Tutored

<u>Analytical Overview for Case Study 3 tutored</u>

Player 1 is focused on the technical demands of playing his trombone, which isolates him rhythmically and melodically during this performance. He plays sliding pitches across an interval of a 5th, which imitates the choir warm up that he experiences in rehearsal twice a week.

Complete Compositional Product for Case Study 3 tutored

Player 2 turns to look at player 1 as he is giving the verbal count of *'1,2,3,4'* in. Player 3 is attempting to play in sync with player 2 and is keenly listening to the beat – indicated by his leaning forward and concentrating. Player 2 is equally engaged. Player 3 is trying hard to maintain a sense of pulse and adapts his rhythmic phrases (going slower and faster) to fit in with the other players. His rhythmic pattern leads player 2 who leans towards him as he attempts to imitate. Rhythmically they remain in sync for the most part, however as the djembe puts 5 beats instead of 4 into his repeated pattern the second time it is played and then includes other various durational changes in the second half of the piece, the xylophone player is thrown off course. Player 2's last three xylophone chords are placed randomly – the first is a 5th between E-B indicating an imitation in pitch of the trombonist's use of sliding 5ths, the second chord a minor 3rd and the final chord a Major 3rd using 'F' the trombonists' starting note but one octave higher. The players start at the same time but drop out separately leaving the xylophone to make the last sound heard.

Part 2: Low Scoring Non-Tutored Classical Stimulus

(Performance length: 20 seconds)

Participants used 3 percussion instruments for this performance djembe, drum and agogo bells (tuned at Gb and Db an octave above middle C). Diagram 6 below shows the positioning of participants for case study 3 non-tutored:

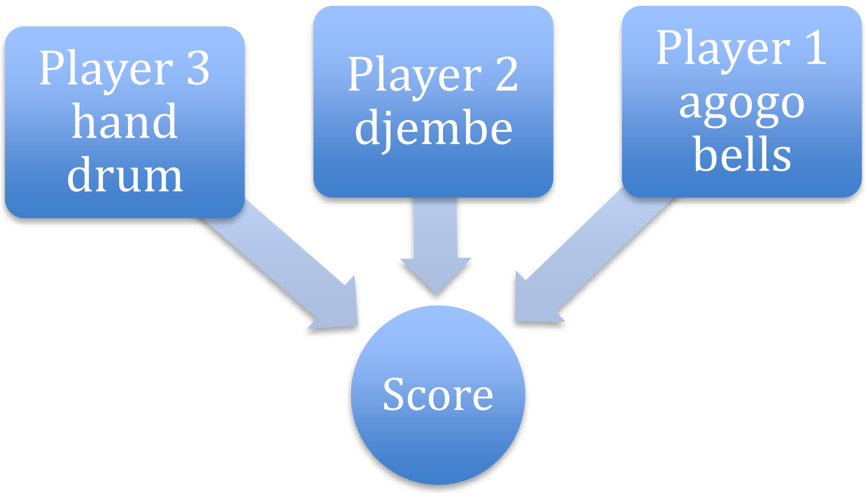
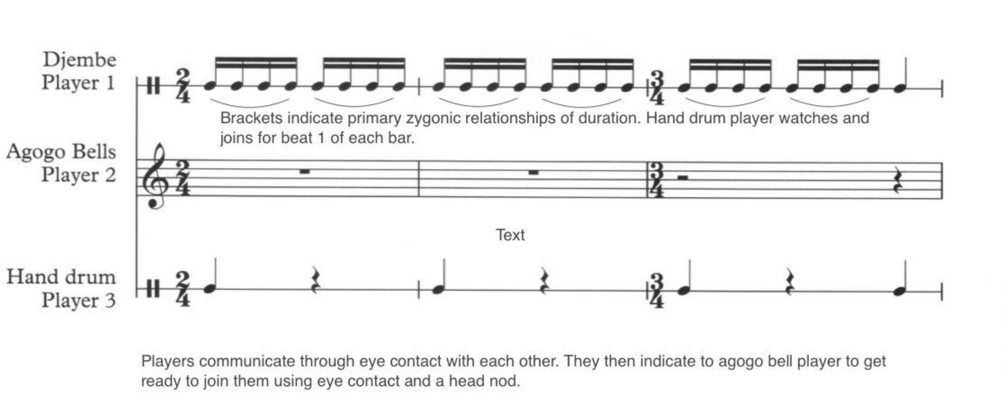


Diagram 6 Positioning of participants for Case Study 3 non-tutored

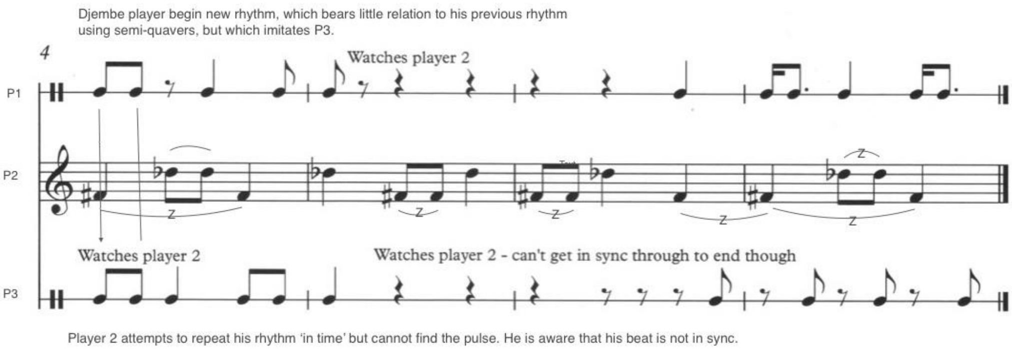
Complete Compositional Product for Case Study 3 non-tutored

Player 1 opens the piece with an introduction on the djembe consisting of groups of 8 semiquaver beats, accompanied by single beats from player 2 – see bars 1-3.



Compositional Product Section 1 for Case Study 3 non-tutored

This pattern occurs 3 times, using a forte dynamic, twice in 2/4 followed by bar 3 establishing 3/4 time. This time signature is then maintained by the agogo bells repeated rhythm pattern, which uses accents to emphasise the first beat of each bar.



Compositional Product Section 2 for Case Study 3 non-tutored

<u>Analytical Overview for Case Study 3 non-tutored continued.</u>

At bars 5-6 (14 seconds in) both player 2 and player 3 briefly watch player 1 on the agogo bells for 4 pulse beats before re-joining the performance together. There is dynamic contrast controlled by the agogo bells as they crescendo towards the end of the performance following a quiet opening in bar 4. During this piece player 1 and player 3 work in rhythmic imitation during bars 4 and 5 but the hand drum then falls out of pulse and plays randomly through bar 8; as in the first (see appendices case study A4) performance the players are mostly focused on a written score.

Sounds of Intent (Composing) Analysis Case Study 3

Research question 1 for Case Study 3:

1) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on the coherence of individual contributions to group composing?

This will be answered in 2 parts:

1a) Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions to group composing?

1b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to group composing?

SoI Composing Analysis Proactive composing (PC) Tutored

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistent imitation of self during performance.
PC4 Imitates own motifs	2	Difficult to discern 'motifs' but the dominant feature is the use of a 5th interval, which is used to create a slide at two different pitches.
PC5 Uses scales and metrical patterns	2	Fifths are used in different forms – at the opening and then during sliding patterns.
PC6 Performs expressively	1	Maintains forte dynamic throughout.

Table 3.1 Tutored: Proactive Composing Category score explanation for Trombone

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistent imitation of self throughout.
PC4 Imitates own motifs	2	One motif identified, which is used throughout performance.
PC5 Uses scales and metrical patterns	1	One repeated pattern identified.
PC6 Performs expressively	1	Maintains same dynamic.

Table 3.2 Tutored: Proactive Composing Category score explanation for Djembe

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	4	For the most part.
PC4 Imitates own motifs	1	Some repetition, but difficult to discern a 'motif' from the beat groupings.
PC5 Uses scales and metrical patterns	1	Pattern of semi-quavers.
PC6 Performs expressively	0	No evidence.

Table 3.3 Tutored: Proactive Composing Category score explanation for Xylophone

SoI Composing Analysis Proactive Composing (PC) Non-Tutored

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistently throughout the piece.
PC4 Imitates own motifs	2	Semi-quavers are repeated, dotted rhythms repeated.
PC5 Uses scales and metrical patterns	2	2 identifiable repeated patterns.
PC6 Performs expressively	2	Opens piece loudly, diminuendo during middle section then suddenly loud at end.

Table 3.4 Non-Tutored: Proactive Composing Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Repeated use of instrument.
PC4 Imitates own motifs	5	Consistent use of quaver pairs and crotchets, sometimes reversed, throughout.
PC5 Uses scales and metrical patterns	2	2 different patterns used.
PC6 Performs expressively	2	During solo moment, purposefully plays louder then dies away at end.

Table 3.5 Non-Tutored: Proactive Composing Category score explanation for Player 1 Agogo Bells

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistently throughout performance
PC4 Imitates own motifs	2	At a basic level on 2 occasions.
PC5 Uses scales and metrical patterns	2	2 simple patterns; scales not possible as un-pitched instrument.
PC6 Performs expressively	1	Engaged with expression in section 1 but then loses focus and looks around.

Table 3.6 Non-Tutored: Proactive Composing Category score explanation for Player 3 Hand Drum

Response to Research Question 1a for Case Study 3:

Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions to group composing?

For tutored participants this composition consists of fragmented ideas from each participant and there is a sense of disjoint musical moments thrust together.

Excerpt 28: for Case Study 3 tutored shows the disjoint nature of the parts (vertically: trombone, djembe, xylophone)

Both the xylophone (repeated pitch A) and trombone (repeated pitch Gb) demonstrate primary zygons of pitch a semitone apart, which creates dissonance. The djembe part is individually more rhythmically consistent within it-self, but doesn't share this consistency in terms of logical durations with either other part.

Although scoring highly for Proactive Composing level 3 ('imitates own sounds'), tutored participant scores in PC levels 4,5 and 6 are low, due to the lack of repetition of musical ideas. The sound of the trombone is very loud and over-bearing and this participant is concentrating so much on the physical demands of the instrument it affects the fluency of the music produced. This group scored higher in their first experimental stimulus response (see appendices case study A9), and higher again in their third experimental response (see appendices case study A17) during which they did not use instruments that they learned on. It is therefore arguable to say that the stimulus cannot be considered an influential factor on the music created in this example; rather the choice of instruments has dictated the musical form. The video footage also shows that the players' facial expressions imply they are unsure of what they are doing. For the non-tutored group, in terms of coherence, individual contributions in response to this stimulus show an increase in understanding compared to their first Experimental response (see appendices case study A4).

Excerpt 29: Case Study 3 non-tutored shows imitation between all parts (vertically: djembe, agogo bells, hand drum)

This increase in scores occurs again in their third Experimental response (see appendices case study A19), making it likely that the group improved at composing as they increased in familiarity with the task and not because of the stimulus. Therefore, it is arguable that stimulus was not a particularly influential factor on individuals' musical contributions in this example.

Response to Research Question 1b for Case Study 3:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to group composing?

For the tutored group in this example, analysis is limited due to the lack of musical material, and therefore the composition is not a reflection of the participants' instrumental knowledge. The level of trombone playing implies that the participant is in the elementary stages of learning the instrument as he has difficulty controlling the sounds made. The lack of skill demonstrated impacts upon his and other group members' musical understanding. So, it can be argued that instrumental tuition in this case has had an impact on the coherence of tutored individual contributions.

Comparably the non-tutored group response demonstrates the use of 'simple' musical ideas, but they are more logically organised than the tutored groups product. The instruments used are more straightforward to manipulate allowing them to consider timbre, texture and the order of musical events despite their basic skill levels. Thus, in summary, whether or not participants were tutored or non-tutored did impact on their level of understanding of their own individual contributions to group composing in this example, but so did their choice of instrument.

Research question 2 for Case Study 3:

2) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on children's use of stimulus material during group composing?

This will be answered in 2 parts:

2a) In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

2b) In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on children's use of stimulus material during group composing?

SoI Composing Analysis Proactive using the Stimulus (PS) Tutored

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	5th intervals are present in the Chopin's prelude as is opening dotted rhythm.
PS4 Imitates motifs from stimulus	1	The dotted rhythm used to open the trombone part and the falling 5th from F to Bb can be found in the opening of the prelude, in the melodic right-hand line.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Major 5th interval found in prelude. Attempt at a bold melodic line.
PS6 Imitates expression from performance of stimulus	1	Slow tempo.

Table 3.7 Tutored: Proactive 'Uses Stimulus' Category score explanation Trombone

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Repetition accompaniment style playing.
PS4 Imitates motifs from stimulus	0	None evident.
PS5 Uses scales and metrical patterns and structure from stimulus	1	Repeated beats with the same value.
PS6 Imitates expression from performance of stimulus	1	Gentle playing.

Table 3.8 Tutored: Proactive Using the Stimulus Category score explanation Djembe

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Repetitive notes as in the left-hand pedal note in the prelude.
PS4 Imitates motifs from stimulus	0	None evident
PS5 Uses scales and metrical patterns and structure from stimulus	1	Use of chords.
PS6 Imitates expression from performance of stimulus	1	Quiet playing.

Table 3.9 Tutored: Proactive Using the Stimulus Category score explanation Xylophone

SoI Composing Analysis Proactive using the Stimulus (PS) Non-Tutored

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Rapid semi-quaver flurries of sound in section 1.
PS4 Imitates motifs from stimulus	1	The prelude uses groups of quavers as does the opening part of the djembe, and the prelude uses a dotted rhythm as found in bar 7.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Dotted rhythms and semi-quaver patterns.
PS6 Imitates expression from performance of stimulus	2	Soft rapid playing followed by the use of rests and crescendo.

Table 3.10 Non-Tutored: Proactive 'Uses Stimulus' Category score explanation for Djembe

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	With quavers and the matching pitch, but it is unlikely that the player consciously matched the pitch to the Chopin recording.
PS4 Imitates motifs from stimulus	1	Repeated pitch patterns and steady rhythms using quavers.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Rhythm and pitch.
PS6 Imitates expression from performance of stimulus	2	Crescendo and diminuendo.

Table 3.11 Non-Tutored: Proactive 'Uses Stimulus' Category score explanation for Agogo Bells

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Pulse beats as in left hand piano part at times within the prelude.
PS4 Imitates motifs from stimulus	1	Quaver pair with crotchet.
PS5 Uses scales and metrical patterns and structure from stimulus	0	No evidence.
PS6 Imitates expression from performance of stimulus	0	No evidence.

Table 3.12 Non-Tutored: Proactive 'Uses Stimulus' Category score explanation Hand Drum

Response to Research Question 2a for Case Study 3:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

Within both groups the use of stimulus material bears little relation to Chopin's prelude, except for an attempt at a melodic line with repetitive accompaniment imitating the homophonic texture. Although this is not executed particularly effectively it could be considered a conscious manipulation of the stimulus material. The non-tutored group have scored marginally higher, partly because they produced more material to work with, gave greater attention to dynamics, and maintained a rhythmic pulse securely. Both tutored and non-tutored groups improved their scores in the third repeat of the task using Experimental music (see appendices case studies A17 and A19), but tutored scores for the first experience of the task (Experimental stimulus, see appendices case study A9) are higher than the second (Classical stimulus). This drop in scores may be due to using the trombone; in both Experimental stimulus examples this tutored group have used percussion.

The stimulus cannot be identified as impacting upon the use of stimulus material in this example, due to the lack of similarities between the Chopin prelude and the creative products.

Response to Research Question 2b for Case Study 3:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on children's use of stimulus material during group composing?

Tutored participants show small references to the stimulus but there is a lack of structure in the way that these references have been used. It is difficult to judge whether or not instrumental learning has impacted the use of stimulus material in this performance; it is evident that some factors of Chopin have been picked up, but these are so small that it is not possible to say if it relates to instrumental knowledge or not.

The non-tutored group display similar levels of use of the stimulus material to the tutored group, but have managed to show a greater level of response to texture (such as the use of silence and different combinations of instruments unlike the tutored example where everyone is playing all the time), dynamics (the non-tutored group use crescendo and diminuendo whereas the tutored group do not use any dynamics) and the use of repetition (there are more examples of repetition in the non-tutored example than the tutored). Thus, instrumental tuition may have impacted on non-tutored participant's use of stimulus material in this example, resulting in them achieving marginally higher Proactive with the Stimulus scores.

Research question 3 for Case Study 3:

3) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact, of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on the structure and content of group compositions?

This will be answered in 2 parts:

3a) Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's group compositions?

3b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's group compositions?

SoI Composing Analysis Evaluating the Product (EP) Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	2	The trombone line is repetitive enough to contribute to the overall structure of the performance.
EP3b Manipulates qualities of sounds to create particular stated effects	2	Uses glissando and trill.
EP4a Repetition of motifs as a structural feature of the piece	2	Sliding intervals are used and then repeated a tone lower.
EP4b Uses motifs to create particular effects	2	To emphasise the presence of the 5ths.
EP5a Uses scales, metrical patterns and form to create coherent structure	2	Two patterns identified, which structure this brief performance.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	Narrative is attempted through the repetition of the pitch group, but it remains at a basic level as there is a lack of structural intention and direction to the performance.
EP6a Deliberately uses expressive effects to articulate structure	1	Difficult to judge as piece is so short.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Use of trill

Table 3.13 Tutored: Proactive 'Evaluating the Product' Category score explanation for Trombone

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	The continuous repetition of this parts' beat creates structure.
EP3b Manipulates qualities of sounds to create particular stated effects	2	Uses clapping and drum tapping to vary timbre.
EP4a Repetition of motifs as a structural feature of the piece	3	One motif identified, which creates structure due to its continuous repetition.
EP4b Uses motifs to create particular effects	1	No real evidence, perhaps an attempt to provide an accompaniment to pitched instruments.
EP5a Uses scales, metrical patterns and form to create coherent structure	1	No evidence of form, structural contribution of pattern.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	1	Narrative is created at a basic level through repetition of motif.
EP6a Deliberately uses expressive effects to articulate structure	1	Plays quietly but this doesn't change at any point i.e. no change of volume at end or beginning.
EP6b Deliberately uses conventional expressive devices to convey particular effects	0	No evidence.

Table 3.14 Tutored: Proactive 'Evaluating the Product' Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	3	Repeated sounds contribute at the outset but are not sustained.
EP3b Manipulates qualities of sounds to create particular stated effects	1	Uses single chords perhaps to signify end.
EP4a Repetition of motifs as a structural feature of the piece	1	Difficult to discern motif, some repetition of same value notes.
EP4b Uses motifs to create particular effects	0	No evidence
EP5a Uses scales, metrical patterns and form to create coherent structure	0	No evidence.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	0	No evidence.
EP6a Deliberately uses expressive effects to articulate structure	1	Use of silence in between final chords maybe deliberate, but video suggests the player is unsure of what he is doing.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Use of chords to create change of timbre.

Table 3.15 Tutored: Proactive 'Evaluating the Product' Category score explanation for Xylophone

SoI Composing Analysis Evaluating the Product (EP) Non-Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	Consistent repetition of ideas.
EP3b Manipulates qualities of sounds to create particular stated effects	5	The djembe player leads the group into the piece, enforces the change of time at bar 3 and through a crescendo determines the ending.
EP4a Repetition of motifs as a structural feature of the piece	3	The motifs used create the structure of the piece, alongside the agogo bells.
EP4b Uses motifs to create particular effects	2	His opening phrases frame the introductory section.
EP5a Uses scales, metrical patterns and form to create coherent structure	2	2 identifiable patterns. Scales not possible on a djembe.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	His opening phrase gives form to the first section.
EP6a Deliberately uses expressive effects to articulate structure	2	Dynamic contrasts evident.
EP6b Deliberately uses conventional expressive devices to convey particular effects	2	Speed variations and loud hit for end.

Table 3.16 Non-Tutored: Proactive 'Evaluating the Product' Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	4	His playing structures the second section of the piece.
EP3b Manipulates qualities of sounds to create particular stated effects	2	Accentuates certain beats to give shape to phrase.
EP4a Repetition of motifs as a structural feature of the piece	4	Basic pattern is repeated creating sense of coherence.
EP4b Uses motifs to create particular effects	1	Not really – the repeated motif doesn't develop.
EP5a Uses scales, metrical patterns and form to create coherent structure	3	Pattern occurs then reverses.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	3	Bars 1 and 4 are the same, bars 2-3 are the same and occur as a derivation of bar 1.
EP6a Deliberately uses expressive effects to articulate structure	0	No evidence
EP6b Deliberately uses conventional expressive devices to convey particular effects	0	No evidence

Table 3.17 Non-Tutored: Proactive 'Evaluating the Product' Category score explanation for Agogo bells.

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	Consistently
EP3b Manipulates qualities of sounds to create particular stated effects	1	Little development of ideas.
EP4a Repetition of motifs as a structural feature of the piece	2	2 basic motifs identifiable.
EP4b Uses motifs to create particular effects	2	As an accompaniment to djembe at the beginning and then in imitation to the agogo bells, but limited as can't maintain rhythm.
EP5a Uses scales, metrical patterns and form to create coherent structure	1	At a basic level.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	1	Only with the support of other players.
EP6a Deliberately uses expressive effects to articulate structure	1	At end with extra loud hit – to indicate ending.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Emphasises first beat of bar with djembe.

Table 3.18 Non-Tutored: Proactive 'Evaluating the Product' Category score explanation for Hand Drum

Response to Research Question 3a for Case Study 3:

Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's group compositions?

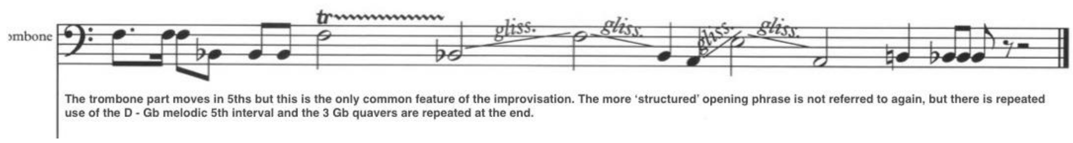
The tutored participants' response lacks structure and content is minimal, therefore likeness to the textures of Chopin is barely audible. As the lack of structure is more prominent in the second than in the first Experimental response from this group, it cannot be deduced that this is down to the stimulus but more likely the groups' approach to composing.

Comparably, the non-tutored group indicate greater structural coherence in their second than in their first attempt (see appendices case study A4 for group's first attempt), showing a possible progression of compositional strategies. The influence of the stimulus on this response in terms of content could be related to the use of a pitched instrument to create a melody line, which dominates the overall piece. Therefore, it is evident that the stimulus has influenced the choices made by participants in terms of organising their ideas, but no more so than the experimental stimuli.

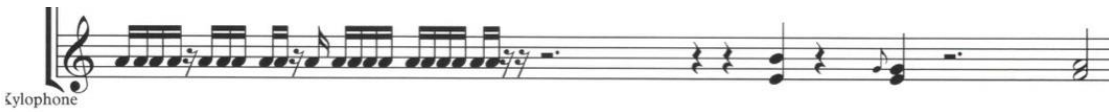
Response to Research Question 3b for Case Study 3:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's group compositions?

For the tutored group instrumental knowledge has in this example, not impacted upon participant's propensity to produce a structured composition as the creative product is lacking in structure and menial in content. The players seem unable to transfer the skills they have onto simple instruments, or to use repetition to form a musical narrative. There is no attempt from the xylophone player, for example to develop a motif of any kind, resulting in low Evaluating the Product scores in this category for levels 4b, 5a and 5b.



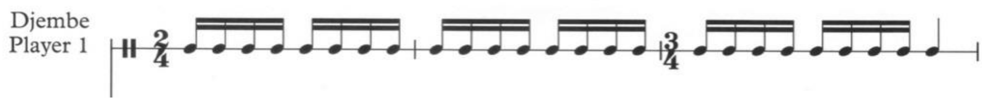
Excerpt 30: Trombone part demonstrating the lack of relation to the xylophone part below in Case Study 3 tutored



Excerpt 31: Xylophone part demonstrating the lack of motivic development in Case Study 3 tutored

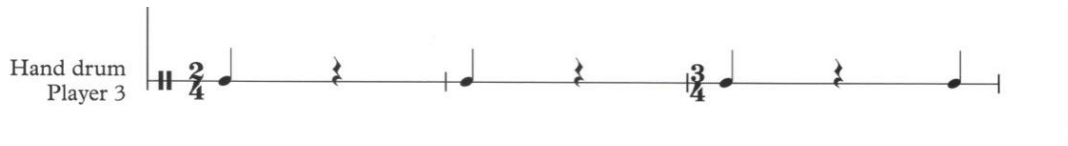
Within the non-tutored composition participants use imitation between parts to create a basic structure, as does the attribution of different roles to different instruments, i.e. the Agogo bells are identified as a solo sound (possibly due to their pitch) whilst the djembe provides the introduction and the hand drum the pulse. The greater frequency of primary and secondary zygonic relationships of pitch and rhythm is found mainly within the agogo bell part and opening djembe part.

Excerpt 32: Motif developed by the agogo bell player with primary and secondary zygons of rhythm and pitch in Case Study 3 non-tutored

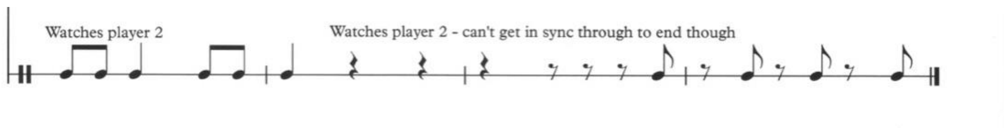


Excerpt 33: Examples of primary zygons of rhythm in the opening bars of the djembe part in Case Study 3 non-tutored

However, there are also examples of a lack of logical structure by the non-tutored hand drum player, who although able to beat in time for bars 1-3, then loses the beat when the agogo bell part is added.



Excerpt 34: Initial hand drum contribution for bars 1-3 in Case Study 3 non-tutored

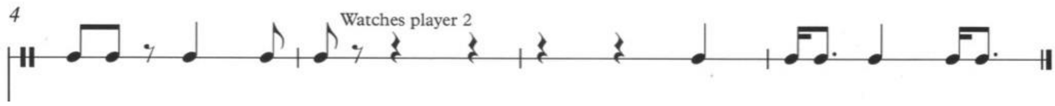


Excerpt 35: Hand drum part after agogo bells have joined the performance in Case Study 3 non-tutored

This was also the case for the djembe player, who opened the piece with a 'solo' of semi-quavers:

Excerpt 36: Opening djembe part for bars 1-3 in Case Study 3 non-tutored

but then found it difficult to respond to the agogo bell rhythm once it was added to the performance:



Excerpt 37: Djembe part once the agogo bells have joined in Case Study 3 non-tutored

Non-tutored participants demonstrated more repetition and musical structure than tutored participants and therefore achieved higher SoI (Composing) Evaluating the Product scores, however both of these creative products received low scores in comparison to other compositions, which is why they have been used as a low scoring example. Overall, the non-tutored players conceived musical content of a very basic nature, and the tutored players demonstrate a lack of development or connection between their ideas.

Research question 4 for Case Study 3:

4) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and or experiencing experimental or traditional Western classical musical stimuli on children's capacity to compose coherently with others in a group?

These will be answered in 2 parts:

4a) Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in a group?

4b) Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in a group?

SoI Composing Analysis Interactive Composing (IC) Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	2	A few moments of shared note values exist in this example, otherwise there is little imitation.
IC3b Imitation of others' sounds	1	Trill could be related to repeated semi-quaver values in other parts.
IC4a Deliberately provides motifs to 'engage' others	2	Two motifs identified, neither of which are imitated.
IC4b Imitates others' motifs	0	No evidence.
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	Again, two patterns used but are not seen in the other parts.
IC5b Imitates others' use of scales and metrical patterns	0	No evidence.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Plays slowly, but this may be due to the elementary level of technical skill on the instrument.
IC6b Imitates others' expression whilst playing	1	Similarity in tempo.

Table 3.19 Tutored: Interactive Composing (IC) Category score explanation for Trombone

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	2	Values used are imitated by xylophone.
IC3b Imitation of others' sounds	2	Imitates xylophone rhythm.
IC4a Deliberately provides motifs to 'engage' others	1	One motif which is in part imitated by xylophone during the first few beats.
IC4b Imitates others' motifs	1	Attempts to imitate xylophone rhythm.
IC5a Deliberately provides scales and metrical patterns for others to imitate	1	Provides the most structured pattern within piece but this is not adopted by either other player once the xylophone has stopped playing.
IC5b Imitates others' use of scales and metrical patterns	1	Again, only in terms of note values.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Plays quietly and carefully.
IC6b Imitates others' expression whilst playing	1	Xylophone also plays quietly, everyone plays slowly.

Table 3.20 Tutored: Interactive Composing (IC) Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	1	Sounds used are imitated for a few seconds at the beginning by the djembe.
IC3b Imitation of others' sounds	1	Only for first 20 beats.
IC4a Deliberately provides motifs to 'engage' others	0	No motif identifiable.
IC4b Imitates others' motifs	0	No evidence.
IC5a Deliberately provides scales and metrical patterns for others to imitate	1	Note values with djembe.
IC5b Imitates others' use of scales and metrical patterns	1	Djembe patterns of semi-quavers.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Difficult to judge as moments of playing are so brief.
IC6b Imitates others' expression whilst playing	2	Slow and quiet.

Table 3.21 Tutored: Interactive Composing (IC) Category score explanation for Xylophone

SoI Composing Analysis Interactive Composing (IC) Non-Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	2	The opening section is possibly intended as an opportunity for imitation, but it is not taken up by either member of the group.
IC3b Imitation of others' sounds	2	At the beginning of section 2, with the hand drum player.
IC4a Deliberately provides motifs to 'engage' others	2	Within the two rhythmic statements made.
IC4b Imitates others' motifs	2	At the beginning of section 2 imitating the hand drum
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	2 identifiable patterns, neither of which are imitated.
IC5b Imitates others' use of scales and metrical patterns	2	Yes, at the beginning and end of section 2.
IC6a Deliberately plays expressively through the playing /performing of the composition	2	Dynamic colour is evident.
IC6b Imitates others' expression whilst playing	2	He joins the crescendo towards the end.

Table 3.22 Non-Tutored: Interactive Composing (IC) Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	2	Throughout section 2.
IC3b Imitation of others' sounds	2	Rhythmically there is imitation between him and the djembe player and once with the hand drum.
IC4a Deliberately provides motifs to 'engage' others	2	Especially during solo moment in the middle of section 2.
IC4b Imitates others' motifs	2	Once with each other player.
IC5a Deliberately provides scales and metrical patterns for others to imitate	3	Yes, throughout section 2.
IC5b Imitates others' use of scales and metrical patterns	2	Once with each other player.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Mostly the same medium dynamic.
IC6b Imitates others' expression whilst playing	1	Seems generally unaware of other's expression.

Table 3.23 Non-Tutored: Interactive Composing (IC) Category score explanation for Agogo Bells

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	1	At the opening of section 2 but only for 2 beats.
IC3b Imitation of others' sounds	1	Once, but doesn't continue.
IC4a Deliberately provides motifs to 'engage' others	1	Single beats during section 1 are the extent of the repetition.
IC4b Imitates others' motifs	1	Once.
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	Nothing concrete; the accompanying beat in section 1 is a clear statement, and then one repetition of the first phrase in section 2.
IC5b Imitates others' use of scales and metrical patterns	1	Once.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Basic level of volume awareness.
IC6b Imitates others' expression whilst playing	1	Although there is eye contact, little evidence of dynamic colour or similarities with other members of the group.

Table 3.24 Non-Tutored: Interactive Composing (IC) Category score explanation for Hand Drum

Response to Research Question 4a for Case Study 3:

Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in a group?

The tutored group demonstrate similar levels of collaboration during this performance in comparison to their previous attempt (see appendices case study A9). There is very little imitation of each other, and musical ideas are not shared or developed. This therefore cannot be attributed to a different stimulus, thus the affect of the stimulus on collaboration is small. The non-tutored group demonstrate a higher level of collaboration than the tutored, evident from the musical imitation identified. It is not clear whether or not the stimulus is influential on the amount of imitation occurring, but it is at an increased level compared to the first response for this group and increases again in their final activity repeat. In summary, stimulus cannot be identified specifically as an influential factor on levels of collaboration within this example for either group.

Response to Research Question 4b for Case Study 3:

Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others?

The tutored participants composition indicates that the choice of instrument can be identified as affecting participants opportunities for musical collaboration as it dominates the composing process due to being loud and due to demanding all of its players' energy and focus. This makes it difficult for him to collaborate with the other participants and is evident in the disjointed nature of the composition. The non-tutored participants composition demonstrates greater levels of collaboration than the tutored, shown in the greater frequencies of musical imitation.

It can be deduced that whether or not participants learnt instruments has impacted upon their levels of collaboration, with non-tutored participants scoring higher than tutored and demonstrating more musical imitation between parts.

5.3.4 Case Study 4 High Scoring Experimental

Part 1: Tutored (Performance length 146 seconds)

This composition is the most extended and complicated of the case studies. This is because the session was supervised by a cover teacher, who allowed the participants to use their own instruments instead of just percussion resulting in the use of a piano, viola, xylophone and snare drum by this group. The use of their own instruments had a noticeable impact on the compositional response they created. The resulting piece consisted of a piano and xylophone improvisation with viola and snare drum accompaniment. Diagram 7 shows the position of participants.

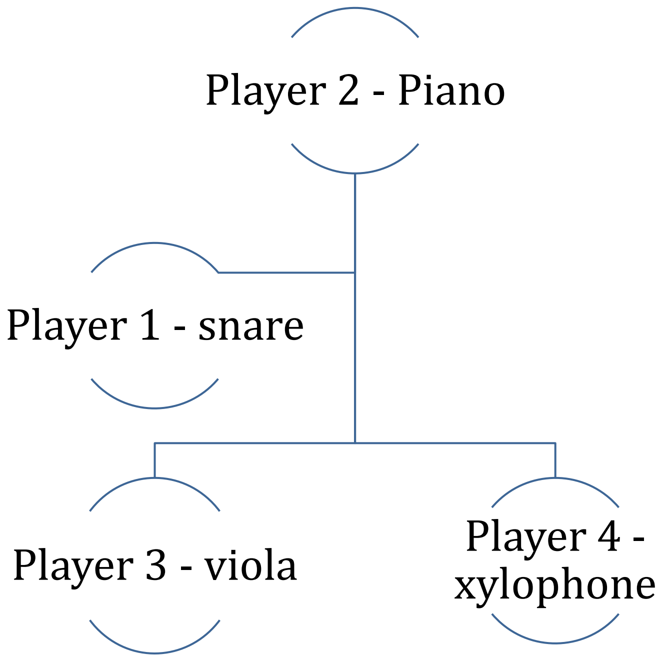
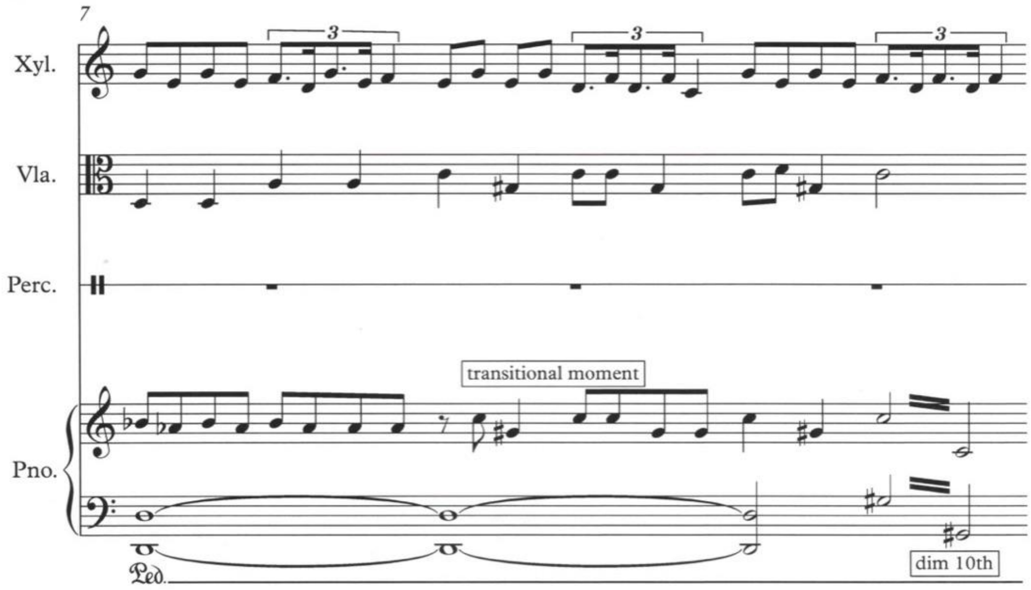


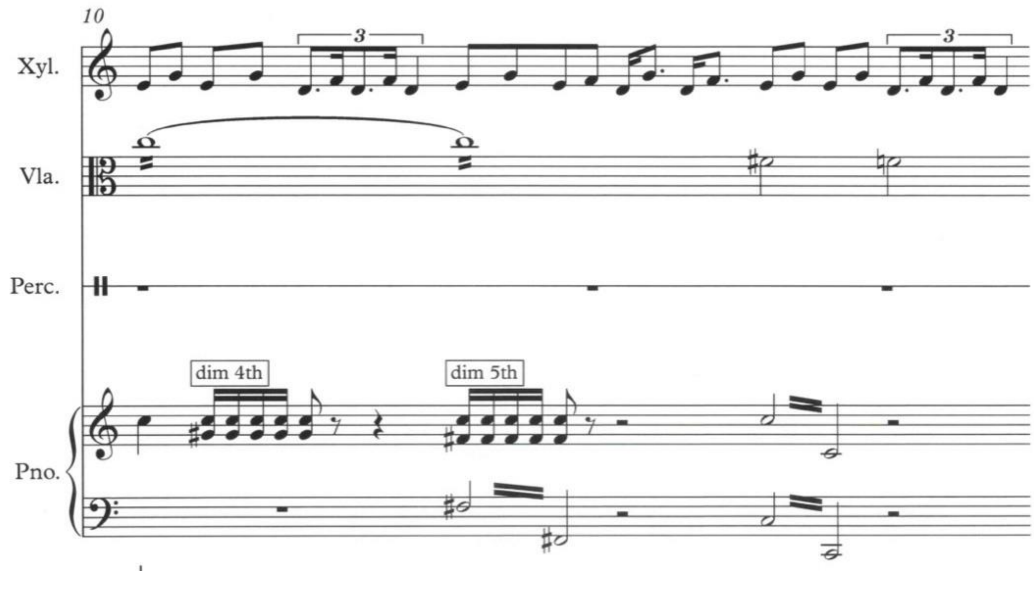
Diagram 7 Positioning of participants Case Study 4 tutored

Analytical Overview Case Study 4 tutored

Player 3 sat facing player 1 and 2, with player 4 sat slightly forward meaning player 1 and 2 were looking at the back of player 4. Player 2 was hidden behind an upright piano where he was reading a score (evident at the beginning of the video when he walks to position carrying the paper sheet).

Compositional Product Case Study 4 tutored p.1





Compositional Product Case Study 4 tutored p. 2

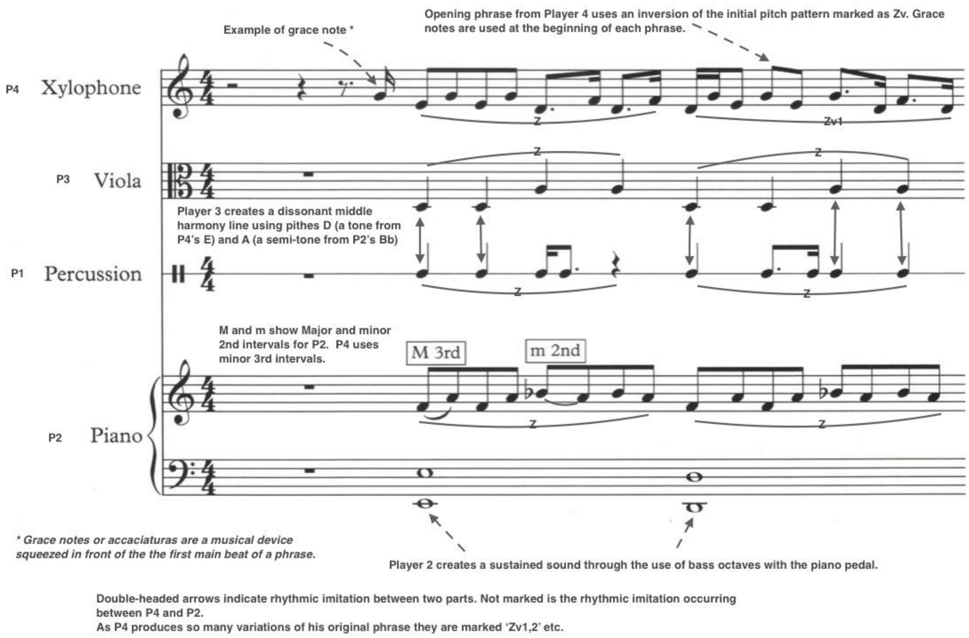
Compositional Product Case Study 4 tutored p.3

Compositional Product Case Study 4 tutored p.4

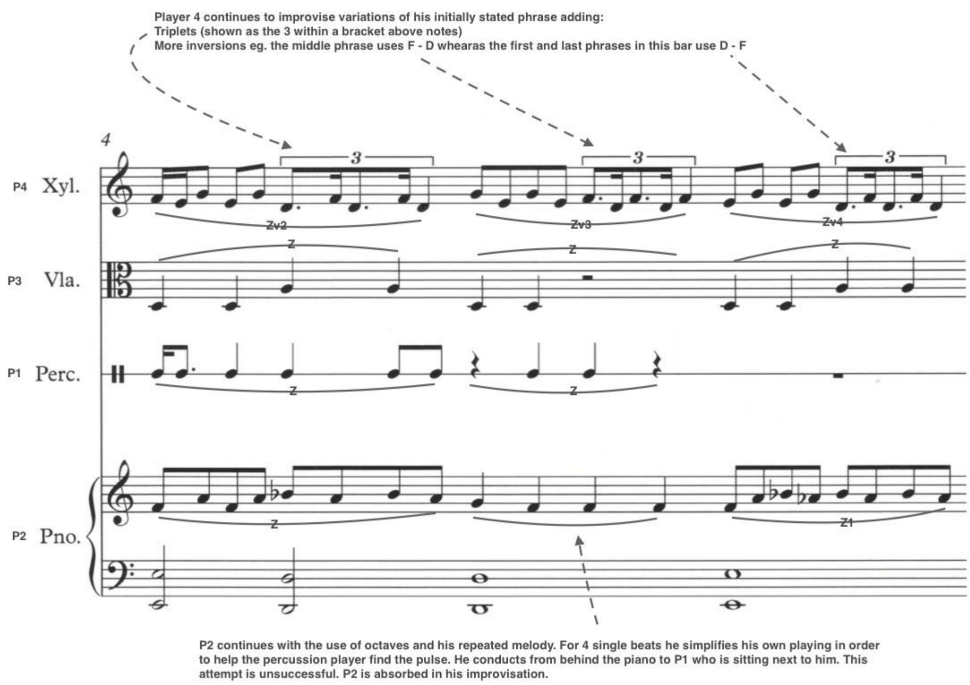
Compositional Product Case Study 4 tutored p.5

Analytical Overview for Case Study 4 tutored (continued)

Player 1 (percussion) counts the piece in – '1,2,3,4' – and his repeated rhythm (marked as Z) is heard until 1 minute 08 seconds in when he reverts to using both drum sticks for the first crotchet of each rhythmic group of 4 to give it more emphasis. He is staring at player 2 for the duration and it is probable that player 2 is controlling the beat through hand gesticulations, but as it is not possible to see player 2 in the video (he is behind the piano) this is a speculation. Player 1 falls in and out of the beat and his rhythmic motif sounds fragmented as its '1st' beat of the 4 beat grouping is happening sometimes on the 1st' beat of the piano phrasing and sometimes on others. This irregular time keeping occurs his performance in both other compositional products (see appendices Case Study A10 medium scoring Experimental tutored and Case Study A15 medium scoring Classical tutored).



Compositional Product Page 1 Section 1 for Case Study 4 tutored



Compositional Product Page 1 Section 2 for Case Study 4 tutored

Player 2 performs a piano improvisation that involves a variety of techniques – use of a wide pitch range, tremolo e.g. bars 10 and 13, melodic and harmonic motifs and dynamic and tempo changes. On initial hearing the piece seems quite 'dark' through the use of dissonant major and minor second intervals occurring between the piano and xylophone parts. However, when played in isolation the piano part reveals a clear harmonic structure. On entry player 2 (piano) states a melody (see bars 1-4) that uses major 3rd and minor 2nd intervals in an ascending and descending quaver pattern that remains within a 4th of F♮ – B ♭ above. Underneath this lie clashing sustained octaves that move from a minor second, minor 3rd, minor 6th and 4th in relation to the melody line every 4 beats. The piano remains around this pitch group until bar 6, where the right hand part moves its pitch range of a 4th up a tone, now working between G♯/A♭ and C within a major 3rd. Player 2 (piano) plays these 2 notes as a melodic interval first rhythmically imitating the initial melody and then in 3 different rhythmic versions, (bars 8-9) before playing them together as a harmonic interval a diminished 10th apart on tremolo octaves – see bar 9, beats 2-3. Here he has made conscious use of pitch networks, and sequencing of ideas. In addition, through bars 7-9 an octave of low D has been sustained, reminiscent of the previous bars and continuing the homophony of right-hand melody and left hand accompaniment.

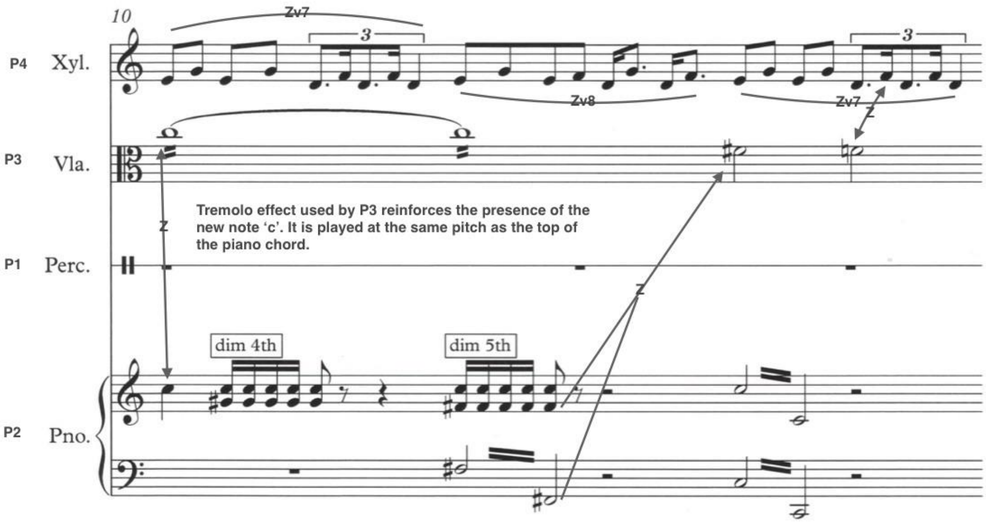
Player 3 improvises during this performance on the viola, moving around different pitches to find harmonic unity with the piano part. He commences on crotchet beats with the notes D and A, sometimes matching the piano's bass D e.g. in bar 5 beat 1 and sometimes creating a further level of dissonance with both the xylophone and piano e.g. in bar 4 beat 2 where three notes E (xylophone), D (viola), E (piano bass part) and F (piano right hand) are heard simultaneously.

The 'transitional moment' indicates where changes in pitch are occurring as the P2 guides the piece into the next section. Tremolo octaves are similar to Schnee's strings tremolo. The viola part follows the changes indicated as Z1. From the video it is clear he is achieving this by ear as he slides around the string to find the correct pitch to match P2. P1 continues with the same rhythm, (not notated), falling in and out of the pulse.
P4 continues to create variations using his original pitch group.

P4 continues with his variations, playing in isolation. He makes no visible communication with the other players and seems unaware
of the changes in duration and timbre that are occurring in the other parts.

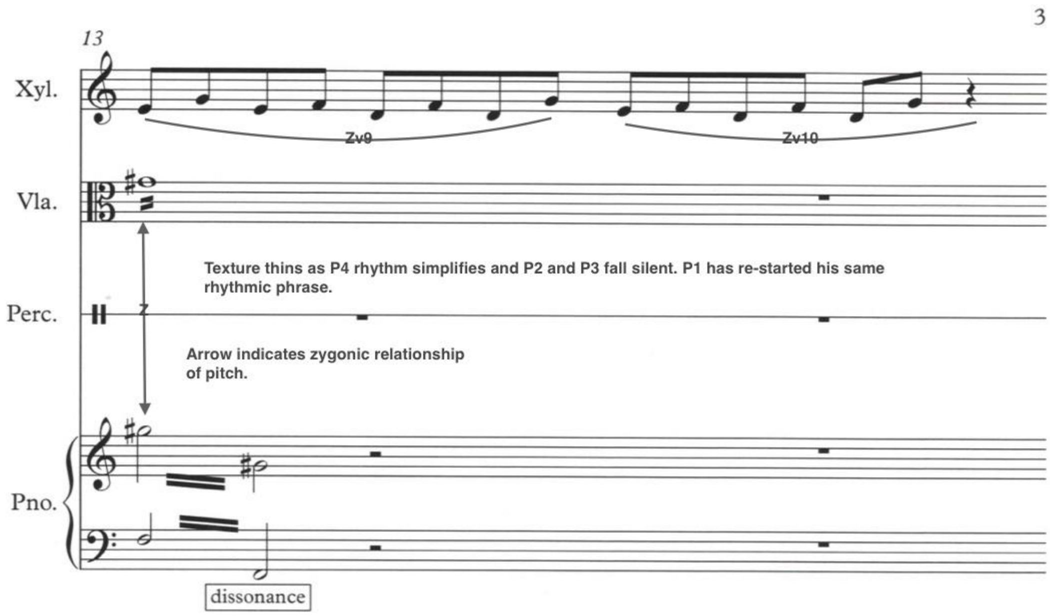
P3 works with what he is hearing playing sustained sounds amongst the movement of the other parts. As a viola player this would often be the role of his instrument in orchestral / quartet playing. He is comfortable working in this way and as he has done in the previous two responses, is extremely aurally aware of what everyone is doing. This is evident in the Zygonic relationships
of pitch (example are indicated by arrows) that are occurring at different points between the viola, xylophone and piano.

P1 drops out completely for bars 10 - 12 unable to continue with the changes that are happening in the piano part.



Compositional Product Page 2 Sections 1 and 2 for Case Study 4 tutored

In bar 10 low D is left behind and pitches G♯ and C are struck as a Major 3rd chord in the right hand as a semi-quaver group – see bar 10 beat 2. The major 3rd interval in the right hand is then widened to an augmented 4th by as shown in bar 11. The semi-quaver grouping is rhythmically repeated with this interval, the left hand tremoloing on an octave of F♯ followed by a quieter tremolo on C octave in both hands; another minim rest and a final dissonant tremolo on octaves of G♯ in the right hand and F♯ in the left conclude the piano part for this first half of the piece. This conclusion has been anticipated musically through the introduction of rests of varying lengths through bars 11-12, diminishing the texture and presence of the piano part gradually. Player 2 (piano) then takes a silence for 6 ♩ beats, which is the first time it is possible to clearly hear Player 4 on the xylophone. In terms of key, the piano part moves around F major and F harmonic minor.

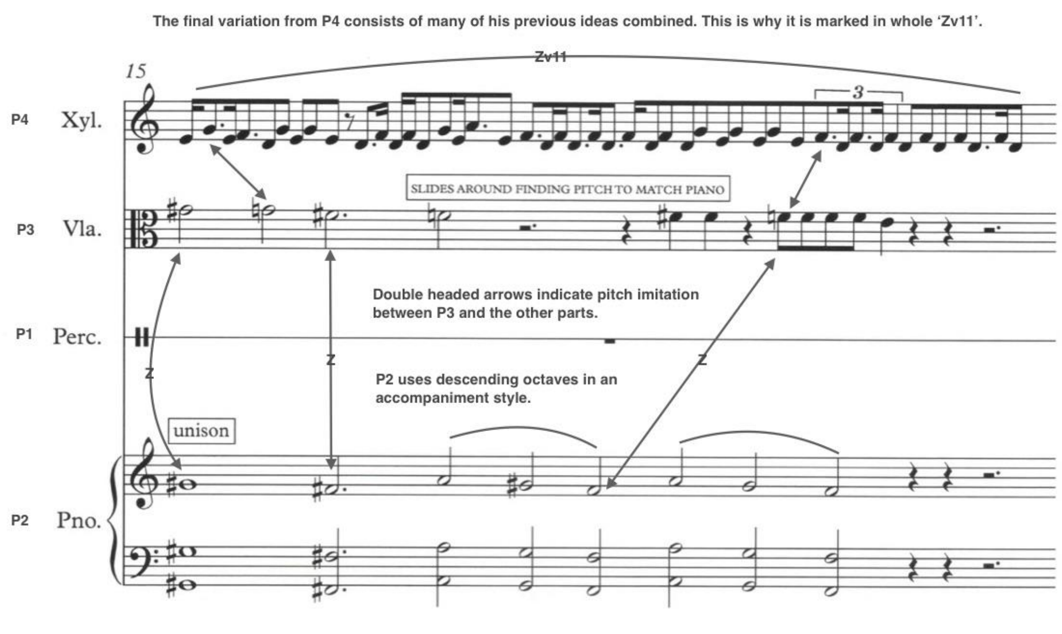


Compositional Product Page 3 Section 1 for Case Study 4 tutored

On re-entry at bar 15 the piano moves around the same pitch group - G♯, F♯, A♮, F♮ and G♮, before returning to B♭ and C, with an underlying feel of 'major' achieved through the use of a loud Major 6th chord on beat 1 of bar 18. The original melody as seen in bars 1-3 is then revived with a pedal F in the bass, finishing with octaves of B♭ and F, which is anticipated with a slowing of speed.

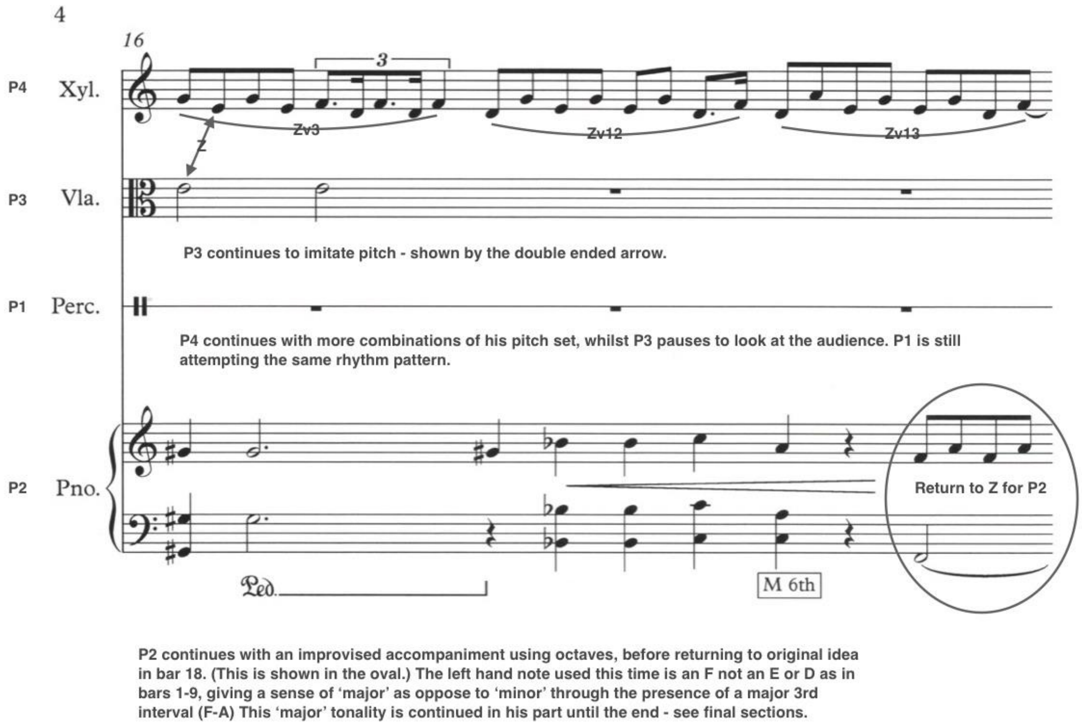
Musically, Player 2 has linked his ideas using networks of pitch, rhythm and musical effects such as sustain pedal and tremolo to successfully create a coherent A-B-A structured piano line. His experimental and bold uses of harmony indicate his ability to manipulate current ideas and re-create new ideas from existing material. His (and the xylophone part) improvisation could be compared to minimalist music, whereby repetition of ideas and gradual changing of a single musical element occur subtly e.g. In bar 6 where the melody is repeated for the 3rd time using B♭- A♭ as oppose to B♭ - A♮, hinting at the introduction of a new pitch, but retaining the previous musical context in that the accompaniment remains unchanged.

Imitating the piano part in terms of pitch and rhythm is player 4 on the xylophone. He uses a repeated rhythmic motif, combining dotted quaver, quaver and semi-quaver time values within a four beat bar structure for the entirety of this performance. There is only 1 crotchet rest for the whole 82 seconds, and he works within a pitch range of a perfect 4th between D – G, moving outside of this on only two occasions – in bar 8 he finishes his phrase with a middle C, and in bar 18 he plays a quaver A. It could be concluded that these were mistakes, due to the fact that they occur only once in such a clinically repetitive part, or that in the case of the middle C he is responding to the introduction of the C in the piano part. Player 4 sits directly in front of the piano and seems unaware of the other players' as he has no visible communication with any of the group. He remains mostly in sync rhythmically with the piano part, despite the fact that his choice of pitches creates dissonant minor and major 2nd intervals regularly throughout. For example, in beats 1-2 of bars 2-6 his use of E and G combined with the piano's F and A, and in bar 16 his use of G♮ clashes directly with the piano's G♯. This does not deter him from playing skilfully with 2 beaters, consciously using rhythmic variation to decorate his part including triplets, e.g. In bar 5 beats 2-4. He joins the rallentando tempo effect at the end of the piece and keeps playing beyond everyone else, finishing mid-bar. This is followed by a loud singular drumbeat (not scored). He moves pitch in accordance with the piano part in bar 7 to C and G♯ where rhythmic imitation can also be seen in beat 3, and then proceeds to echo the tremolo effect introduced by the piano in bar 10 on a high C, at the same pitch as the piano. In bar 12, player 4 moves through pitches F♯ and F♮ to arrive at G♯ with the piano at bar 13 for 4 beats.



Compositional Product Page 3 Section 2 for Case Study 4 tutored

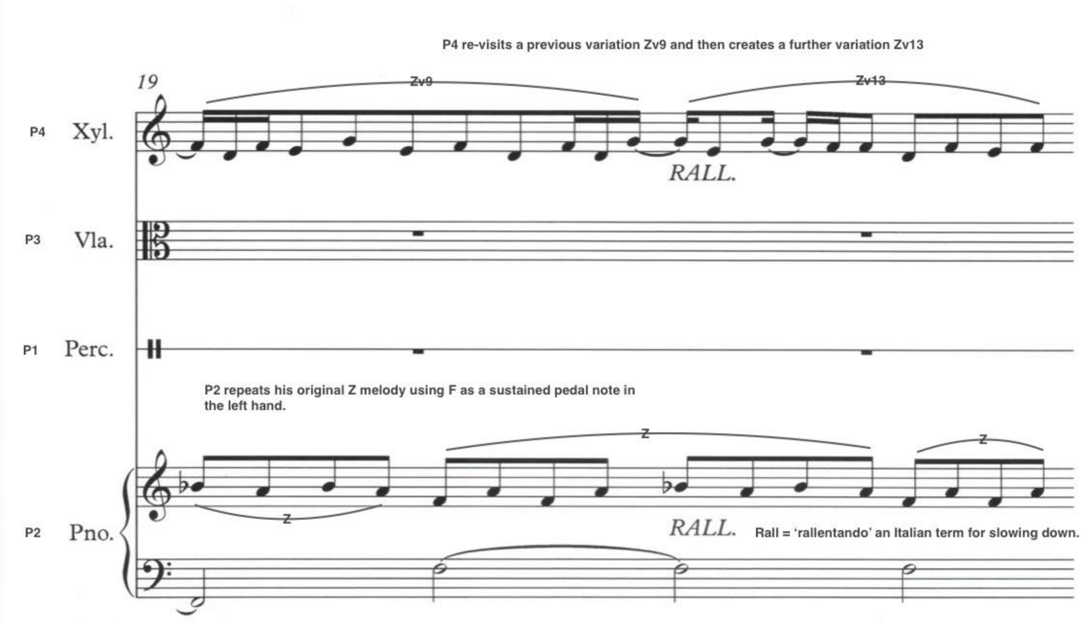
At this point (42 seconds in) he also looks behind to the piano. Player 3 (viola) then resumes at bar 15 with chromatically descending pitches where he is clearly sliding around the strings to find a suitable pitch match, and unsure of the clashing sounds between the xylophone and piano parts as he looks between player 2 and 4. The pitches he uses sporadically mimic the piano, e.g. beats 1-2 and 5-7 until he drops out again 1 beat after the piano at the end of this phrase. During this rest he watches the player 2 on the piano for 4 seconds and then resumes playing for four beats on the note E at bar 16.



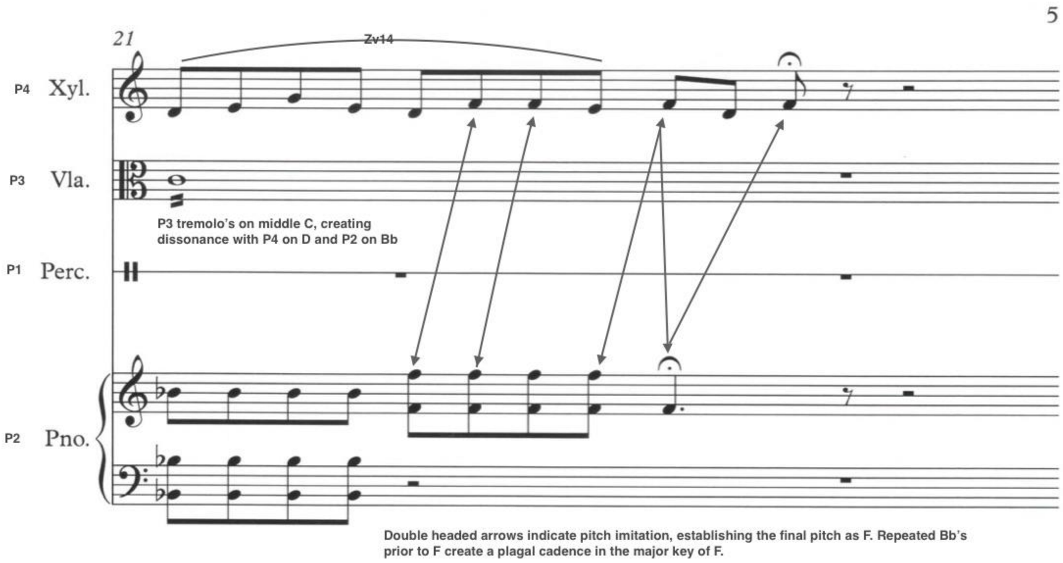
Compositional Product Page 4 Section 1for Case Study 4 tutored

Player 3 resumes a tremolo on middle C from bar 21 for 4 beats to finish. Player 3 seems more clearly connected with the other parts in this performance than when reading a score during the group's other Experimental performance (*see Case Study A10 medium scoring Experimental tutored in Appendices*). He is able to aurally identify suitable places to play on his instrument and imitate other parts where possible.

There is no coherent structure to his playing, rather he plays 'accompaniment' style to enhance and respond to the harmony. He shows intuitive musical sense using his instrument to provide sustained sounds as oppose to directly trying to imitate the rhythmic movement of the piano or xylophone. The result is he creates a sustained harmonic line, which moves between the piano and xylophone pitch ranges.



Compositional Product Page 4 Section 2 for Case Study 4 tutored



Compositional Product Page 5 (final section) for Case Study 4 tutored

This performance is an example of the use of formally 'learnt' musical knowledge and skills, (as the participants are playing the instruments they are individually tutored on), and how this then transpires during group improvisation.

Player 2 (piano) has the most musically complex part and his high level of skill on the piano is consciously used to create musical effects (such as his use of tremolo and low octaves for drama) and convey musical meaning (repeated melodic motifs). There are frequent examples of primary, secondary and tertiary zygons of pitch and rhythm throughout his part. Player 1(un-pitched percussion) demonstrates a more basic skill level that is reflected in the simplicity of his part and in the lack of rhythmic accuracy displayed. Player 4 (xylophone) takes a more isolated role and although is absorbed in his xylophone playing, indicating a high level of skill, shows a limited development of ideas reflected in the repetitive nature of the part.

Part 2 Case Study 4: Non-tutored High Scoring Experimental

Diagram 8 shows the position of participants for case study 4 non-tutored:

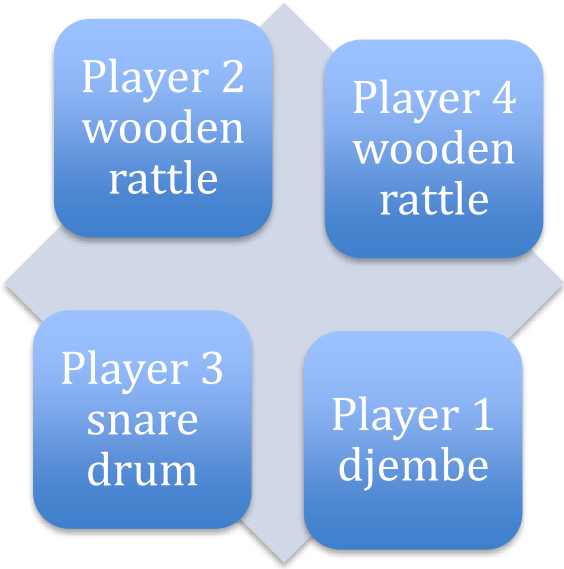
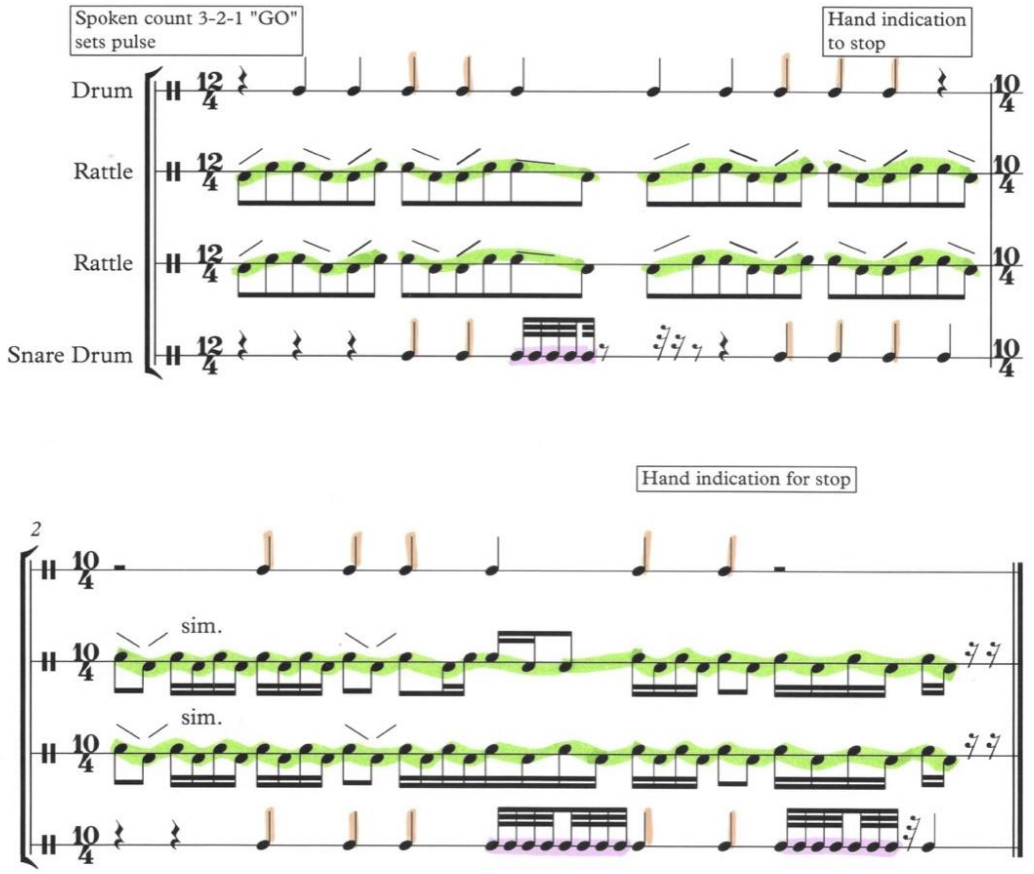


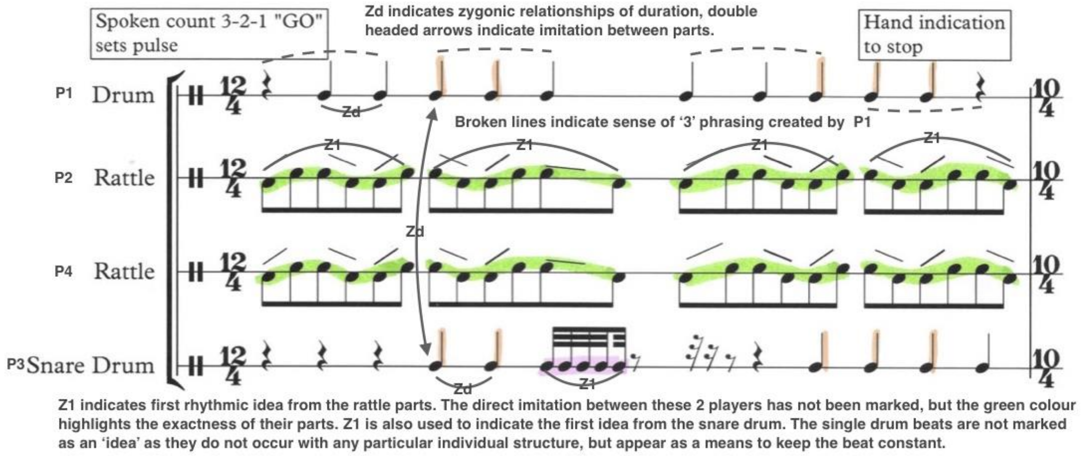
Diagram 8 Positioning of participants Case Study 4 non-tutored



Complete Compositional Product for Case Study 4 non-tutored

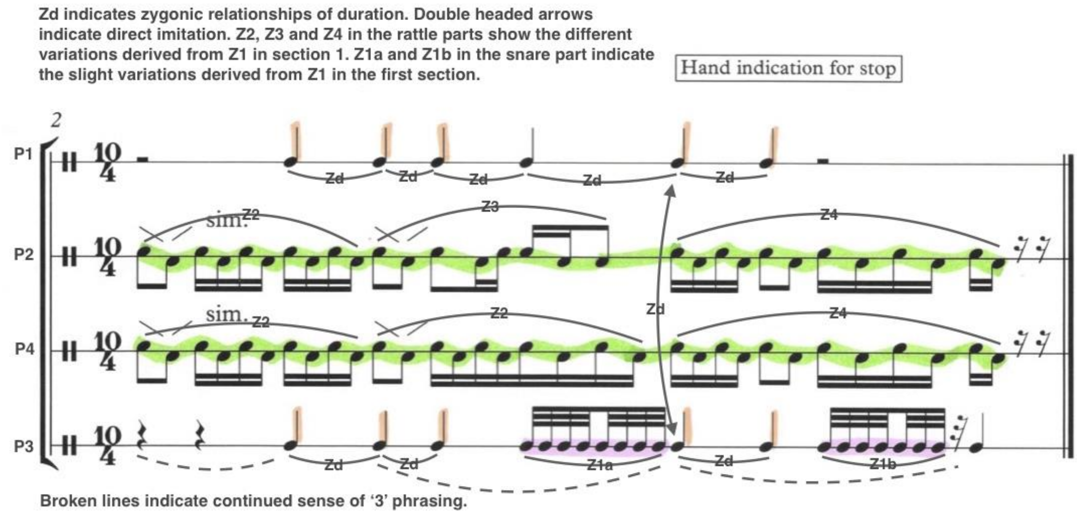
<u>Analytical Overview for Case Study 4 non-tutored</u>

Players 2 and 3 both play rattles and begin the performance after being cued in by Player 1 who sets the pulse. They open with a steady beat over which Player 4 plays a drum motif.



Compositional Product section 1 showing rhythmic imitation between the parts

Player 3 sits opposite Player 1 and finishes the performance with 10 seconds of drum improvisation, consisting of a repeated rhythmic phrase and using two drum-sticks on the side and top of the drum.



Compositional Product Section 2 showing the variations of rhythm in the second sections of the piece for Case Study 4 non-tutored

During this whole performance player 2 and 4 (rattles) imitate each other rhythmically, dynamically and physically. They sit next to each other with their bodies turned slightly towards one another and play during the drum solo but at half the volume, indicating awareness of the use of dynamics for musical effect. Player 1 (drum) indicates to player 4 (rattle) how loud he should be playing by physically crouching over his instrument and making a 'sh' shape with his mouth. His part is noticeably simpler, providing a simple pulse, due to the fact that he is leading the performance, through the use of verbal and physical instructions. For example, after 12 beats player 1 indicates for everyone to stop. He then cues players 2 (rattle) and 3 (snare) in to begin the second half of the piece quietly followed by player 4 (rattle).

There is a silence and a slow drawn out use of the rattle by player 2 indicating the end; his group watch whilst he completes the final sound (this is not on the score).

Notes for comparison

The tutored example used for this case study was an anomaly amongst the sample. There was no other Experimental creative product (tutored or non-tutored) that displayed this level of complexity. I therefore had to find the nearest comparison or to not use the tutored example, however it was felt that this particular example was useful for developing a thread of argument concerning the use of instruments at a high level of skill (addressed in qualitative findings) and should not be ignored. Thus, the difference in the technical complexity of these two examples is noticeable. However, as the SoI (Composing) scoring system measures levels of imitation and musical communication, not technical complexity the scores for these two products are still similar, justifying the comparison.

Sounds of Intent (Composing) Analysis

Research question 1 for Case Study 4:

1) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on the coherence of individual contributions to compositions, when improvised in small groups?

This will be answered in 2 parts:

1a) *Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions to compositions, when improvised in small groups?*

1b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to compositions, when improvised in small groups?

SoI Composing Analysis Proactive Composing (PC) Tutored

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistent self-imitation
PC4 Imitates own motifs	5	Groups of notes are repeated e.g. bars 1-7
PC5 Uses scales and metrical patterns	3	Various patterns are used
PC6 Performs expressively	1	Plays loudly in order to hear himself above the other louder instruments.

Table 4.1 Tutored: Proactive Composing Category score explanation for Viola

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuous self-imitation
PC4 Imitates own motifs	5	Multiple examples of motivic imitation.
PC5 Uses scales and metrical patterns	5	Multiple examples of different patterns being used.
PC6 Performs expressively	3	Uses pedal, uses change of tempo, uses silence.

Table 4.2 Tutored: Proactive Composing Category score explanation for Piano

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuous self-imitation
PC4 Imitates own motifs	5	14 motifs identified.
PC5 Uses scales and metrical patterns	5	Multiple patterns created using a small group of notes.
PC6 Performs expressively	1	Plays at the same dynamic throughout but follows slow down at the end.

Table 4.3 Tutored: Proactive Composing Category score explanation for Xylophone

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuous self-imitation
PC4 Imitates own motifs	1	One 'motif' identified.
PC5 Uses scales and metrical patterns	1	One pattern identified.
PC6 Performs expressively	1	Lack of expression – concentrating on keeping time.

Table 4.4 Tutored: Proactive Composing Category score explanation for Snare

SoI Composing Analysis Proactive Composing (PC) Non-Tutored

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuously
PC4 Imitates own motifs	3	One 'motif' and 2 variations are identified and other beats imitated throughout.
PC5 Uses scales and metrical patterns	2	Two identifiable patterns as seen in score.
PC6 Performs expressively	3	Constant awareness of expression. During section1 plays quietly. Section 2 uses a louder dynamic.

Table 4.5 Non-Tutored: Proactive Composing Category score explanation for Snare

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuously
PC4 Imitates own motifs	5	Continuously
PC5 Uses scales and metrical patterns	4	Four identifiable patterns
PC6 Performs expressively	5	Awareness of dynamics: playing loudly during first section, quietly during second section 2 and then provides final slow quiet sound (not scored)

Table 4.6 Non-Tutored: Proactive Composing Category score explanation for Player 2 Rattle 1

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuously
PC4 Imitates own motifs	5	Continuously
PC5 Uses scales and metrical patterns	4	Four identifiable patterns
PC6 Performs expressively	5	Awareness throughout as in rattle 1

Table 4.7 Non-Tutored: Proactive Composing Category score explanation for Player 4 Rattle 2

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuously
PC4 Imitates own motifs	1	No motifs identified, but continuous pulse
PC5 Uses scales and metrical patterns	2	Two identifiable patterns
PC6 Performs expressively	3	Shows an awareness of dynamics and tempo change, changes own playing to fit.

Table 4.8 Non-Tutored: Proactive Composing Category score explanation for Djembe

Response to Research Question 1a for Case Study 4:

Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions to compositions, when improvised in small groups?

The tutored group in this example demonstrate varying levels of coherence in each of their parts, with the percussion player showing the lowest level of individual understanding. This is evident in the scores for Proactive Composing levels 4, 5 and 6, whereby he has been unable to develop a motif or use identifiable patterns and the scores are low. The other participants contribute at a complex level and it is arguable that this is more likely a result of the instruments as opposed to the stimulus, as their other products (see appendices case studies A10 and A15) do not show the same level of embellishment.

Non-tutored participants also demonstrate a clear understanding of their individual roles and both groups scored highly across Proactive Composing levels

3, 4 and 5, but non-tutored participants scored higher in Proactive Composing level 6 (performs expressively).

Neither of these groups demonstrated as high scores in their previous 2 task attempts (this case study is their 3rd attempt) therefore supporting the notion that the stimulus was not the most influential factor on their levels of individual contribution and understanding *(for previous task attempts see Appendices Case Studies: A10 tutored, A5 tutored, A4 non-tutored and A11 non-tutored)*

Response to Research Question 1b for Case Study 4:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to compositions, when improvised in small groups?

Tutored participants in this example demonstrate that when using their own instruments they are able to explore composing with greater complexity than when using only percussion instruments, leading to greater coherence of their individual ideas, for example Player 4 (xylophone in Abrahamsen response, rain stick in Chopin) has demonstrated a much higher level of musical skill when responding to Abrahamsen as oppose to Chopin.

The non-tutored participants show an increased level of understanding in comparison to their previous attempts. There are frequent examples of primary and secondary zygonic relationships of duration and use of variations of ideas derived from previous rhythmic patterns.

In summary, whether or not these participants received instrumental lessons has impacted upon their individual understanding of their musical contributions, be it to encourage their use of instrumental skills during composing in the case of the tutored group, or increase levels of imitation, as in the non-tutored group.

Research question 2 for Case Study 4:

2) In 9-11-year-old children’s compositions is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on children’s use of stimulus material during group composing?

This will be answered in 2 parts:

2a) In 9–11-year-old children’s compositions, is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

2b) In 9–11-year-old children’s compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on children's use of stimulus material of experimental or traditional Western classical music during group composing?

SoI Composing analysis Proactive using the Stimulus (PS) Tutored

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	3	Tremolo – used extensively in Schnee. Use of long durations.
PS4 Imitates motifs from stimulus	3	Use of wide intervals, short phrases and tremolo.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Sustained sounds to accompany 'busier' parts.
PS6 Imitates expression from performance of stimulus	1	No variation in dynamic, which is similar to the opening of Schnee.

Table 4.9 Tutored: Proactive Using the Stimulus Category score explanation Viola

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	5	Repeated short durations, dissonance, range of pitch, changes in texture from dense to thin.
PS4 Imitates motifs from stimulus	5	Motifs using a change in durations e.g. bar 10. Wide intervals. Tremolo octaves.
PS5 Uses scales and metrical patterns and structure from stimulus	3	Repetitive patterns, use of close dissonant intervals, use of wide octaves
PS6 Imitates expression from performance of stimulus	2	Schnee is dynamically static during the opening; the piano part is loud and full of pedal, which does not mimic the clean individually heard sounds of Schnee.

Table 4.10 Tutored: Proactive Using the Stimulus' Category score explanation for Piano

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	3	Repetition, dissonance, variation.
PS4 Imitates motifs from stimulus	5	Short to long and long to short durational combinations. Multiple variations of a small group of sounds.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Extremely busy and constantly sounding part. Although Schnee is repetitive, there is much use of silence.
PS6 Imitates expression from performance of stimulus	1	Same dynamic throughout

Table 4.11 Tutored: Proactive Using the Stimulus Category score explanation Xylophone

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Repetitive
PS4 Imitates motifs from stimulus	1	Repeated durations
PS5 Uses scales and metrical patterns and structure from stimulus	1	Dotted rhythm
PS6 Imitates expression from performance of stimulus	1	No change in expression at any point.

Table 4.12 Tutored: Proactive Using the Stimulus Category score explanation Snare

SoI Composing Analysis Proactive using the Stimulus (PS) Non-tutored

SoI (Composing) Category and Criteria	**Score given (Scale 0-5)**	**Reason for Score**
PS3 Imitates sounds from stimulus	2	Longer drawn out durations combined with bursts of shorter durations is similar to parts of the opening movement in Schnee
PS4 Imitates motifs from stimulus	2	Again only in terms of use of long and short durations.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Two identifiable patterns
PS6 Imitates expression from performance of stimulus	3	Dynamic contrast and change of speed. Different timbres created through using different parts of the drum.

Table 4.13 Non-Tutored: Proactive 'Uses Stimulus' Category score explanation for Snare

SoI (Composing) Category and Criteria	**Score given (Scale 0-5)**	**Reason for Score**
PS3 Imitates sounds from stimulus	3	Different durations (short and extremely short) used plus constant repetition
PS4 Imitates motifs from stimulus	3	Different durations, reversing the rhythmic order, change of tempo and extremely slow drawn out isolated sound at end can all be related to sounds from the first two minutes of Schnee, however Schnee uses extremes of pitch which were not possible due to the use of un-pitched percussion
PS5 Uses scales and metrical patterns and structure from stimulus	2	The patterns used are simple such as those in the opening of Schnee, and contain subtle changes.
PS6 Imitates expression from performance of stimulus	3	Dynamic shading and changes of tempo. Extremely slow ending sound. Use of silence.

Table 4.14 Non-tutored: Proactive 'Uses Stimulus' Category score explanation for Rattle 1 and Rattle 2

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Use of single beats and silence
PS4 Imitates motifs from stimulus	1	Only uses single repetitive beats, which is a feature of Schnee but cannot be described as a motif.
PS5 Uses scales and metrical patterns and structure from stimulus	1	Again, not possible to identify patterns, but pulse structures piece as in the constant beat heard in Schnee.
PS6 Imitates expression from performance of stimulus	3	Uses crescendo, diminuendo, silence and speed changes.

Table 4.15 Non-tutored: Proactive 'Uses Stimulus' Category score explanation for djembe

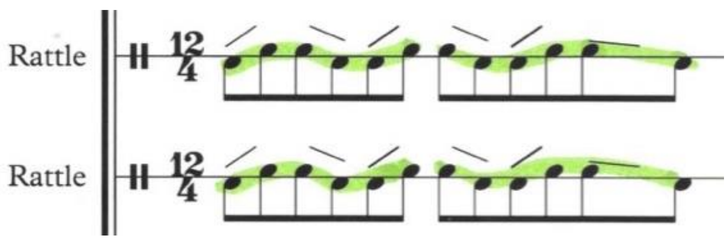
Response to Research Question 2a for Case Study 4:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

The scores for both tutored and non-tutored participants for Proactive using the Stimulus are identical in this case study. The tutored participants' use of stimulus material in this performance is extensive, and there are frequent examples of repetition and dissonance (see excerpt 38 below). This is shown in their high scores for Proactive using the Stimulus levels 3, 4 and 5 but not in level 6 (PS6: *imitates expression from stimulus*). Non-tutored participants scored higher in this (PS6) category as they used intentional changes in speed and dynamic.

Excerpt 38: Repetition, dissonance and use of wide pitch range (between pitches E and F in the piano part for Case Study 4 tutored

It can be speculated that the stimulus has influenced the way that imitative material has been manipulated. For non-tutored participants, there are fewer examples of stimulus references made during this performance compared to the tutored group and they are simpler in structure, but there is greater use of expressive devices.



Excerpt 39: Simple repetition in the rattle parts for Case Study 4 non-tutored

Therefore, the stimulus has had an impact on the use of stimulus material in both compositions in this example, but the creative responses are very different.

Response to Research Question 2b for Case Study 4:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on group composing?

Tutored participants ability to use their instruments with competence in this example may have enabled them to copy from the stimulus more easily than in their previous attempts, and then their non-tutored counterparts. This could be because they understand the capabilities of their instrument and could therefore apply those skills according to what they wanted to achieve musically.

Non-tutored participants demonstrate the ability to logically organise their ideas, even though those ideas are a great deal simpler than the tutored example. In summary whether or not participants received instrumental tuition has impacted on their use of stimulus material, even though both responses are very different. Whilst non-tutored participants have put a greater emphasis on expression than tutored – shown in their higher scores for Proactive using the Stimulus level 6, tutored participants demonstrate a higher level of technical skill and the use of complex musical structures.

Research question 3 for Case Study 4:

3) In 9-11-year-old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on the structure and content of group compositions?

This will be answered in 2 parts:

3a) Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's group compositions?

3b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's group compositions?

SoI Composing Analysis Evaluating the Product (EP) Tutored

SoI (Composing) Category and Criteria	**Score Given (Scale 0-5)**	**Reason for Score**
EP3a Repetition of sound as a structural feature	5	Provides a sustained harmonic line throughout the piece.
EP3b Manipulates qualities of sounds to create particular stated effects	2	Particularly tremolo and use of vibrato.
EP4a Repetition of motifs as a structural feature of the piece	3	Motifs used are in response to other players melodic lines and are therefore integral to overall structure.
EP4b Uses motifs to create particular effects	2	As an accompaniment and to create sustained sounds.
EP5a Uses scales, metrical patterns and form to create coherent structure	3	Patterns are created in response to what is occurring musically and contribute to overall coherence.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	4	An understanding of the contribution he is making musically, thus part created is logical and relates to other parts.
EP6a Deliberately uses expressive effects to articulate structure	2	Dropping out and creating moments of silence.
EP6b Deliberately uses conventional expressive devices to convey particular effects	2	Tremolo and vibrato

Table 4.16 Tutored: Proactive 'Evaluating the Product' Category score explanation for Viola

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	Consistently
EP3b Manipulates qualities of sounds to create particular stated effects	5	Multiple examples, use of octaves, use of sustain pedal, use of silence.
EP4a Repetition of motifs as a structural feature of the piece	5	Multiple motifs identified.
EP4b Uses motifs to create particular effects	5	Original motif is returned to at the end of the piece. Consistent dissonance created with xylophone through choices of pitch.
EP5a Uses scales, metrical patterns and form to create coherent structure	5	Uses different patterns to communicate changes in sections of piece, achieves an A-B-A structure.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	5	Motifs are used to generate ideas of tonality which are manipulated at the end to achieve a particular tonal sound (major). Patterns are varied to adapt to desired changes in texture.
EP6a Deliberately uses expressive effects to articulate structure	4	Some expression attempted – use of pedal, silence, sustained sounds, moving parts, tremolo and chords.
EP6b Deliberately uses conventional expressive devices to convey particular effects	4	Uses the possibilities of the instrument to create sound colours such as dissonant octaves (bar 13) etc.

Table 4.17 Tutored: Proactive Evaluating the Product Category score explanation for Piano

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	Continuous.
EP3b Manipulates qualities of sounds to create particular stated effects	1	Only in terms of changing pitch order. Hits the instrument with same force throughout.
EP4a Repetition of motifs as a structural feature of the piece	5	Multiple examples – see score.
EP4b Uses motifs to create particular effects	5	Changes the rhythm of the motifs to create contrast e.g. bars 13-16. Uses different durations and syncopation to create effect.
EP5a Uses scales, metrical patterns and form to create coherent structure	5	Consistently.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	3	The pattern is maintained throughout but does not respond to the changes in the piano part such as a change of pitch or use of chords.
EP6a Deliberately uses expressive effects to articulate structure	1	No expressive effects apart from following the slow down are evident.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Plays fast and energetically creating drama.

Table 4.18 Tutored: Proactive Evaluating the Product Category score explanation for Xylophone

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	1	Cannot be described as 'structural' as is out of time with everyone else.
EP3b Manipulates qualities of sounds to create particular stated effects	0	No evidence
EP4a Repetition of motifs as a structural feature of the piece	1	One motif identified.
EP4b Uses motifs to create particular effects	0	No evidence
EP5a Uses scales, metrical patterns and form to create coherent structure	1	One pattern identified.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	0	No evidence
EP6a Deliberately uses expressive effects to articulate structure	0	No evidence
EP6b Deliberately uses conventional expressive devices to convey particular effects	0	No evidence

Table 4.19 Tutored: Proactive Evaluating the Product Category score explanation for Snare

SoI Composing Analysis Evaluating the Product (EP) Non-Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	The snare solo provides the variation over the constant repetition of the rattles and djembe. This contributes to the overall shape of the compositions
EP3b Manipulates qualities of sounds to create particular stated effects	3	Alternative use of instrument at different points.
EP4a Repetition of motifs as a structural feature of the piece	4	The repeated motif forms a layer of interest over the other sounds and is distinct from them both in timbre and rhythmic shape.
EP4b Uses motifs to create particular effects	2	As a contrasting feature
EP5a Uses scales, metrical patterns and form to create coherent structure	3	Three uses of the pattern assist in structuring the piece. The addition of the snare amongst the predictable rhythms builds on the texture.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	Two patterns identified
EP6a Deliberately uses expressive effects to articulate structure	2	In terms of using rests to move in and out of the constant sound. Playing quietly when instructed to.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Dynamic contrasts evident.

Table 4.20 Non-Tutored: Proactive 'Evaluating the Product' Category score explanation for Snare

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	Yes continuously – the repetition of the rattle rhythms provides an overall structure for the piece
EP3b Manipulates qualities of sounds to create particular stated effects	3	For example, controlling speed of rattle to create a particular type of sound at various points.
EP4a Repetition of motifs as a structural feature of the piece	5	The motif is extended differently as three points and the change in use of duration marks the opening of the second section
EP4b Uses motifs to create particular effects	3	Yes to change the texture and dynamics
EP5a Uses scales, metrical patterns and form to create coherent structure	3	The repetitive nature of the patterns used forms the overall structure of the piece.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	Again, the repetition of the patterns used and their gradual development creates a narrative.
EP6a Deliberately uses expressive effects to articulate structure	2	At the end and during the piece
EP6b Deliberately uses conventional expressive devices to convey particular effects	2	In terms of speed change and dynamics.

Table 4.21 Non-tutored: Proactive 'Evaluating the Product' Category score explanation for Rattle 1 and Rattle 2

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	4	Continuous repetition
EP3b Manipulates qualities of sounds to create particular stated effects	2	Tempo and dynamics
EP4a Repetition of motifs as a structural feature of the piece	1	Ambiguous to describe single hits as a 'motif'
EP4b Uses motifs to create particular effects	1	Again, no real presence of motifs
EP5a Uses scales, metrical patterns and form to create coherent structure	1	Incorporates single beats with snare creating a sense of pattern
EP5b Uses scales, metrical patterns and form to create meaningful narratives	1	As part of the overall narrative but not individually.
EP6a Deliberately uses expressive effects to articulate structure	3	Not necessarily on his own instrument, but instructs use of silence and dynamic changes to others.
EP6b Deliberately uses conventional expressive devices to convey particular effects	3	Again, through the control of other player's sounds. Use of tempo change, dynamic contrast and silence.

Table 4.22 Non-tutored: Proactive 'Evaluating the Product' Category score explanation for Djembe

Response to Research Question 3a for Case Study 4:

Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's group compositions?

For tutored participants, the structure and content of this performance is noticeably more complex than the groups' prior performances. This could be attributed in part to the stimulus but is most likely due to them using their own instruments. A second observation is that players have constructed the content of the piece in association with their instrument e.g. the viola has assumed a 'harmony' line, the piano and xylophone have assumed solo melodic lines, the piano has also created an accompaniment bass line and the percussionist has assumed an accompaniment style beat.

References to the stimulus are frequent in the piano and xylophone parts, which are highly imitative – evident in the high scores for Evaluating the Product levels 3a, 3b, 4a and 4b for these participants. Scores for these levels are slightly lower in the viola and much lower for the percussion part, as he was not able to establish his musical role within the group with any consistency. Aside from the pianist, scores for levels Evaluating the Product 6a and 6b, which consider expressive devices used, were lower for the tutored group. Thus, in this particular example it can be suggested that the stimulus has had a considerable impact on the use of dissonance and repetition within the content developed by this tutored group, but not on musical expression.

Non-tutored participants have also constructed a piece that makes use of repetitive and imitative content, reflected in the high scores of the rattle parts for Evaluating the Product levels 3a, 3b, 4a, 4b, 5a and 5b.

All players in the non-tutored group scored highly in Evaluating the Product levels 6a and 6b, indicating that they may have been influenced by the extreme expressive devices used in Schnee.

Response to Research Question 3b for Case Study 4:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's group compositions?

In this example certain tutored participants have used their technical knowledge on instruments to manipulate different qualities of sound during composing. Their instrumental knowledge has most likely contributed to the creation of a longer piece of music with a definitive structure and the xylophone and piano players both using their instrumental skill to develop motivic ideas. The viola and snare drum player demonstrated less creativity in terms of developing ideas, evident in their lower Evaluating the Product SoI (Composing) scores.

The non-tutored group used more dynamics and expression than the tutored but their ideas were simpler. In summary, whether or not participants received instrumental tuition has impacted upon their use of content and structure in this example. Whereas the tutored participants have exploited their technical knowledge and skill, the non-tutored group have focused more on musical expression.

Research question 4 for Case Study 4:

4) In 9-11-year-old children's compositions, is there an impact and if so what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on children's capacity to compose coherently with others?

This will be answered in 2 parts:

4a) Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others?

4b) Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others?

SoI Composing Analysis Interactive Composing (IC) Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	3	Various points of imitation, but usually in response to others.
IC3b Imitation of others' sounds	5	Multiple examples.
IC4a Deliberately provides motifs to 'engage' others	1	Follows others.
IC4b Imitates others' motifs	3	Enhances other players' motifs but doesn't directly copy, apart from pitch matching.
IC5a Deliberately provides scales and metrical patterns for others to imitate	1	Not really – follows piano for the most part.
IC5b Imitates others' use of scales and metrical patterns	3	Imitates xylophone and piano in part at different places.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Seems to find the whole experience amusing and communicates with audience in the middle of performance. Lack of focus demonstrated implying participant finds activity easy/boring.
IC6b Imitates others' expression whilst playing	1	Tremolo with piano.

Table 4.24 Tutored: 'Interactive Composing' (IC) category score explanation for Viola

SoI Category and (Composing) Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	5	Uses sounds to direct other's playing
IC3b Imitation of others' sounds	5	At multiple points in pitch and duration.
IC4a Deliberately provides motifs to 'engage' others	5	Consistently
IC4b Imitates others' motifs	4	In part but frequent subtle references.
IC5a Deliberately provides scales and metrical patterns for others to imitate	5	Many different ideas are produced.
IC5b Imitates others' use of scales and metrical patterns	2	Occasionally with viola and rhythmically with xylophone.
IC6a Deliberately plays expressively through the playing /performing of the composition	3	Some expression evident and leads any changes.
IC6b Imitates others' expression whilst playing	2	Has more loud and soft moments than anyone else.

Table 4.25 Tutored: 'Interactive Composing' (IC) category score explanation for Piano

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	5	Rhythmic patterns imitated at multiple points in piano part.
IC3b Imitation of others' sounds	5	Direct rhythmic imitation with piano, pitch imitation with viola and piano.
IC4a Deliberately provides motifs to 'engage' others	5	Multiple motifs identified, which are imitated in part by viola and piano.
IC4b Imitates others' motifs	5	Rhythmically at multiple points.
IC5a Deliberately provides scales and metrical patterns for others to imitate	5	Multiple patterns used, which are imitated at different points by viola and piano.
IC5b Imitates others' use of scales and metrical patterns	5	At multiple points, including inverting and copying movement of piano.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Continues at end when everyone else has finished.
IC6b Imitates others' expression whilst playing	1	Not really – immersed in own part.

Table 4.26 Tutored: 'Interactive Composing' (IC) category score explanation for Xylophone

SoI (Composing) Category and Criteria	**Score Given (Scale 0-5)**	**Reason for Score**
IC3a Deliberately provides sounds for others to imitate	2	Single beats occasionally imitated by piano.
IC3b Imitation of others' sounds	1	Single beats played.
IC4a Deliberately provides motifs to 'engage' others	2	Two 'motifs' identified.
IC4b Imitates others' motifs	1	Lack of awareness of other's parts.
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	Two patterns identified, neither of which are 'imitated' by other parts.
IC5b Imitates others' use of scales and metrical patterns	1	Lack of awareness of other's use of patterns.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Lack of expression.
IC6b Imitates others' expression whilst playing	1	Plays as a solo sound although loud like piano.

Table 4.27 Tutored: 'Interactive Composing' (IC) category score explanation for Snare

SoI Composing Analysis Interactive composing (IC) Non-Tutored

SoI (Composing) Category and Criteria	**Score Given (Scale 0-5)**	**Reason for Score**
IC3a Deliberately provides sounds for others to imitate	4	Definitely provides sounds for group as directly engaged with them during performance.
IC3b Imitation of others' sounds	4	Direct imitation of the djembe and plays shorter durations simultaneously with the rattles during 12/4 bar.
IC4a Deliberately provides motifs to 'engage' others	3	Is aware of the role of his part – e.g. playing louder when rattles drop down and with increased energy towards the end.
IC4b Imitates others' motifs	2	Imitation of the semi quaver patterns within the rattle parts, seen in his use of crotchets followed by demi-semi-quavers.
IC5a Deliberately provides scales and metrical patterns for others to imitate	3	Makes initial statement of demi-semi-quavers in 10/4 bar, which is later imitated by rattles.
IC5b Imitates others' use of scales and metrical patterns	2	Is aware of what others are doing and plays in time and alongside them, imitating djembe.
IC6a Deliberately plays expressively through the playing /performing of the composition	3	Is aware of changes and follows instructions for expression from Player 1.
IC6b Imitates others' expression whilst playing	4	Constantly watching and adjusting his own playing to work with the other parts. Is fully engaged with group.

Table 4.28 Non-Tutored: 'Interactive Composing' (IC) category score explanation for Snare

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	5	Leads both rattle parts and is imitated by Rattle 1 continuously
IC3b Imitation of others' sounds	5	Continuously imitating Rattle 1
IC4a Deliberately provides motifs to 'engage' others	4	Initiates changes of motif in rattle part for Rattle 1 to follow.
IC4b Imitates others' motifs	5	Imitates Rattle 1 and in part Snare
IC5a Deliberately provides scales and metrical patterns for others to imitate	4	Is the initiator for all patterns used
IC5b Imitates others' use of scales and metrical patterns	4	Continuously with Rattle 1
IC6a Deliberately plays expressively through the playing /performing of the composition	4	Awareness of dynamics, speed changes and effects needed to create ending sound.
IC6b Imitates others' expression whilst playing	4	Works with Rattle 1 and djembe to create correct expression.

Table 4.29 Non-Tutored: 'Interactive Composing' (IC) category score explanation for Rattle1 & 2

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	3	Provides constant beat to control speed
IC3b Imitation of others' sounds	2	Directly with snare
IC4a Deliberately provides motifs to 'engage' others	2	Provides pulse beat for all to follow
IC4b Imitates others' motifs	2	Only snare
IC5a Deliberately provides scales and metrical patterns for others to imitate	3	Difficult to score as although his part cannot be described as a metrical pattern, he is providing the pulse and tempo change for others to follow.
IC5b Imitates others' use of scales and metrical patterns	2	Directly with snare
IC6a Deliberately plays expressively through the playing /performing of the composition	5	Controls the expression of the whole performance although his instrumental part is technically simple.
IC6b Imitates others' expression whilst playing	5	Moves in and out of deliberate engagement and imitation with use of musical expressive devices.

Table 4.30 Non-Tutored: 'Interactive Composing' (IC) category score explanation for Djembe

Response to Research Question 4a for Case Study 4:

Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in a group?

All participants in this example show a development of ideas in comparison to their previous experimental response (see appendices case study A10 tutored and case study A20 non-tutored). There is more coherence between the ideas, evident through an increase in rhythmic imitation, particularly between the xylophone and piano parts in the tutored example and between the rattle parts in the non-tutored example. This is evident in the SoI (Composing) scores for Interactive Composing levels 3a, 3b, 4a and 4b (these levels score for the deliberate provision of sounds/patterns/motifs for others to imitate and the frequency of the imitation of these factors between participants).

Tutored participants have worked collaboratively on all three tasks, however this example is the most musically imitative, shown in the high Interactive Composing scores for the viola, piano and xylophone, thus increased levels of collaboration for this group may be as a result of using experimental rather than classical musical stimuli.

Response to Research Question 4b for Case Study 4:

Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in a group?

For tutored participants using their own instruments has enhanced the levels of collaboration between players, thus it can be speculated that the high scores achieved were affected by the fact that these participants had instrumental skills that they were able to bring into a group composing context. Although it must be observed that this only applied to three of the four tutored participants, as the percussionist did not achieve this, reflected in his low scores in all SoI (Composing) scoring categories. Non-tutored participants were also able to work collaboratively, so in this example, and unlike the other case studies, whether or not participants received instrumental tuition did not impact their ability to work collaboratively, except in the case of one tutored participant.

5.3.5 Case Study 5 Medium Scoring Experimental

Part 1: Tutored (Performance Length: 23 seconds)

Participants used tone block (Player 4), triangle (Player 2), djembe (Player 1) and wooden click clack (Player 3). Diagram 9 shows the positioning of participants for case study 5 tutored:

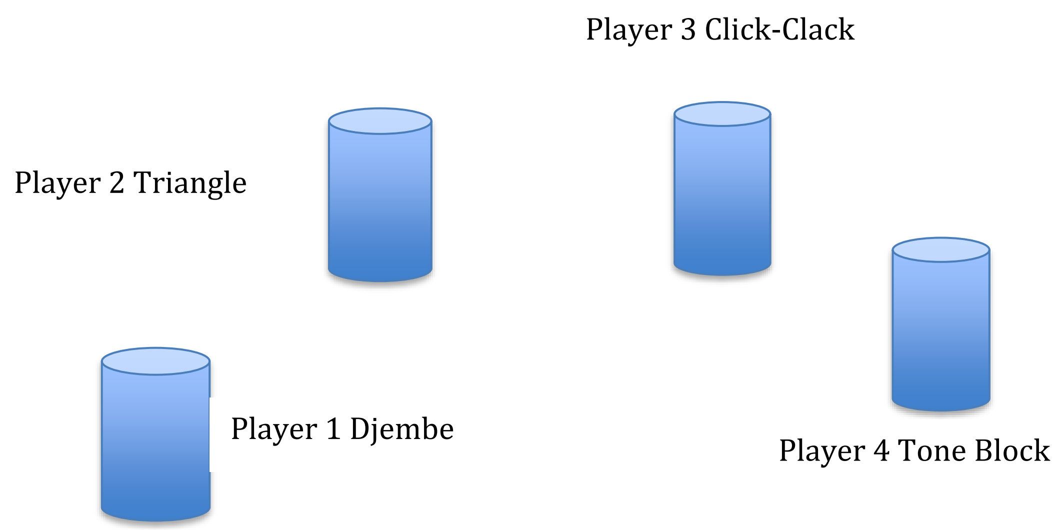
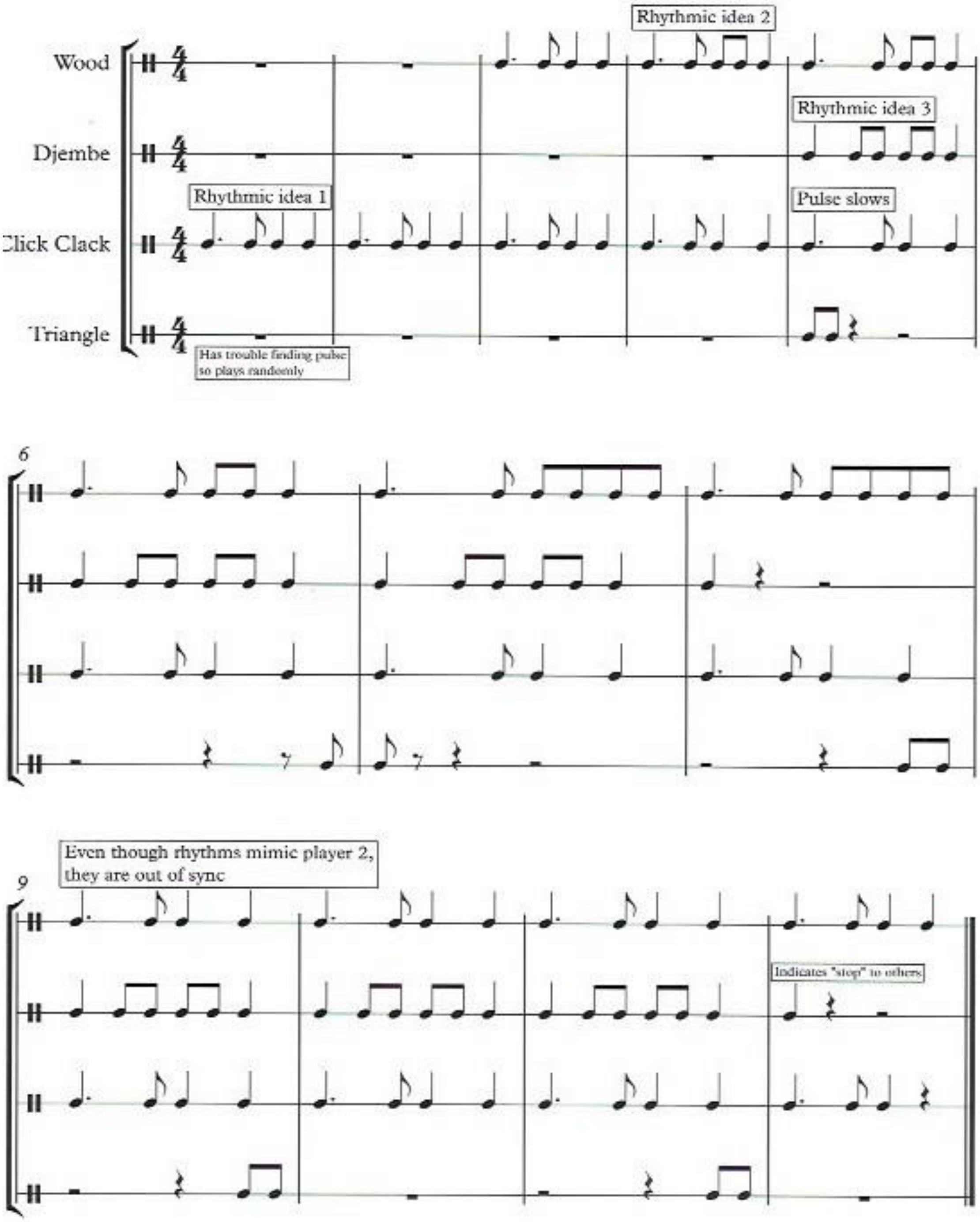


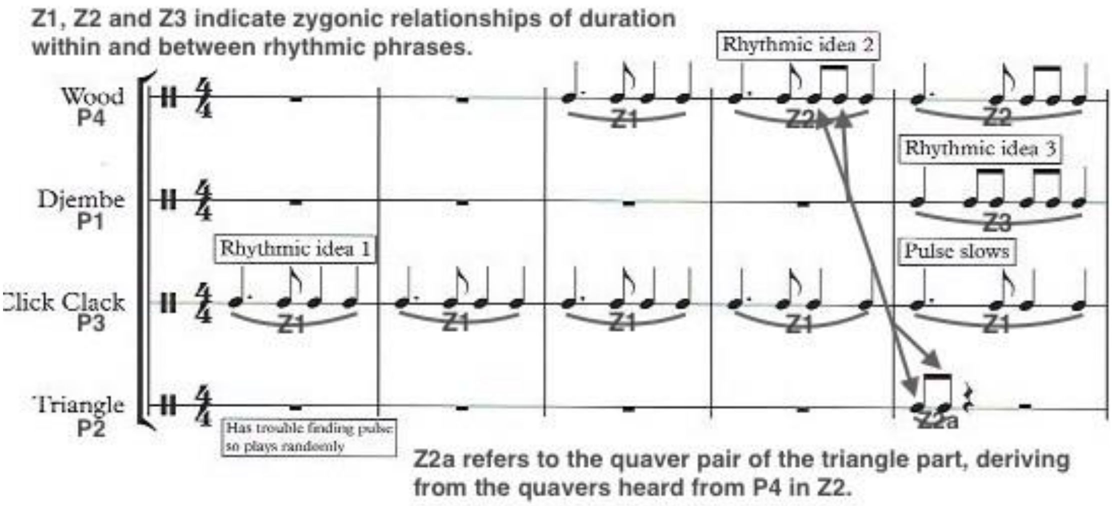
Diagram 9 Positioning of participants Case Study 5 tutored



Complete Compositional Product for Case Study 5 tutored

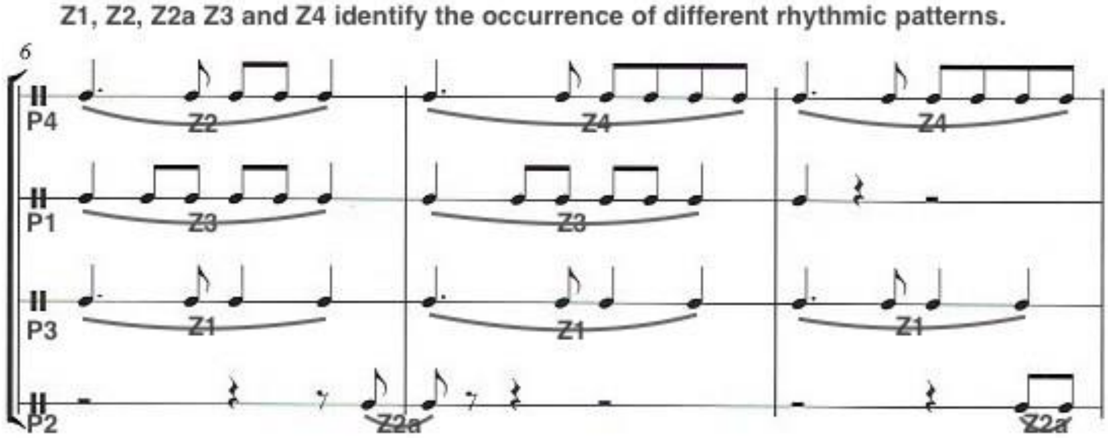
<u>Analytical Overview for Case Study 5 tutored</u>

Player 1 (djembe) counts the group in verbally with *'3,2,1, go'* and then motions to the click clack to begin playing. Player 1 (djembe) enters at bar 5 with a different rhythm to player 3 (click-clack) creating a polyrhythmic texture. Whilst the djembe and other percussion are able to maintain a unison pulse, the triangle player is completely lost. At bar 3 the tone-block commences rhythmic imitation of the click clack, which continues until the end of bar 6, when the tone block player then develops the rhythm for bars 7 and 8.



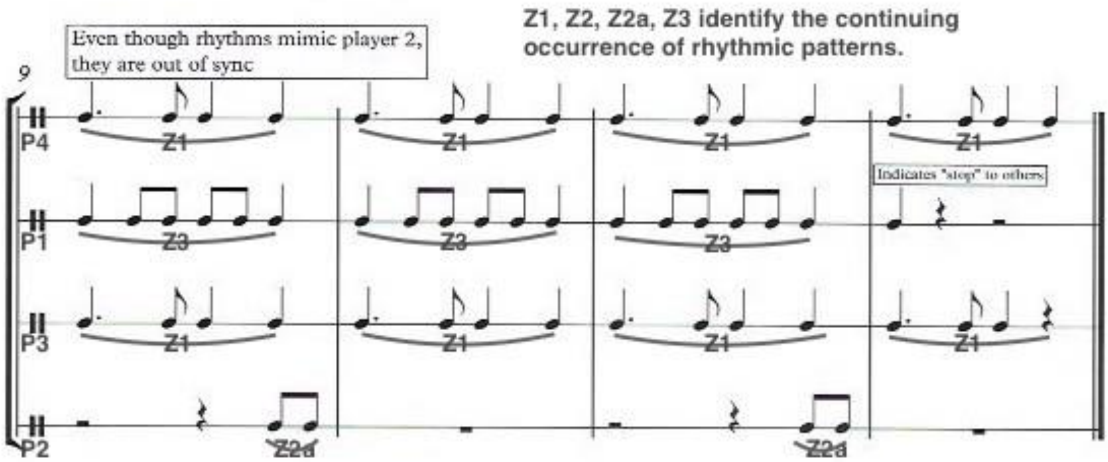
Compositional Product Section showing canonic entry of parts bars 1-5 for Case Study 5 tutored

The triangle player makes no eye contact during this performance and stares straight ahead until the end when he glances over to the djembe as he makes a clear ‘stop’ sign. The tone block player appears self-conscious, looking around himself and avoiding eye contact with his group.



Compositional Product Section showing bars 6-8 of Case Study 5 tutored

Player 2 uses the triangle at random points (bar 6-7, final beat of bar 8, 9 and 11). The performance ends abruptly when Player 1 mouths 'stop' and swipes his hands through the air – see bar 12.



Compositional Product Section showing bars 9-12, the final section of Case Study 5 tutored

Part 2 Case Study 5: Non-Tutored Medium Scoring Experimental Stimulus

(Performance length: 31 seconds)

Participants use 4 percussion instruments for this performance as player 1 uses 2 beaters, 1 for beating a djembe and 1 for hitting a hand drum, which is placed on the floor. Diagram 10 shows the position of participants for case study 5 non-tutored:

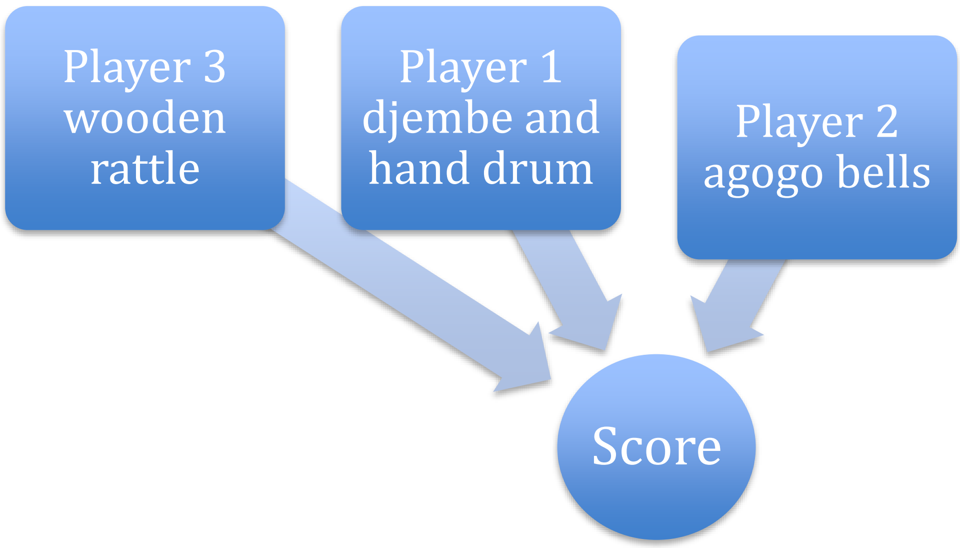
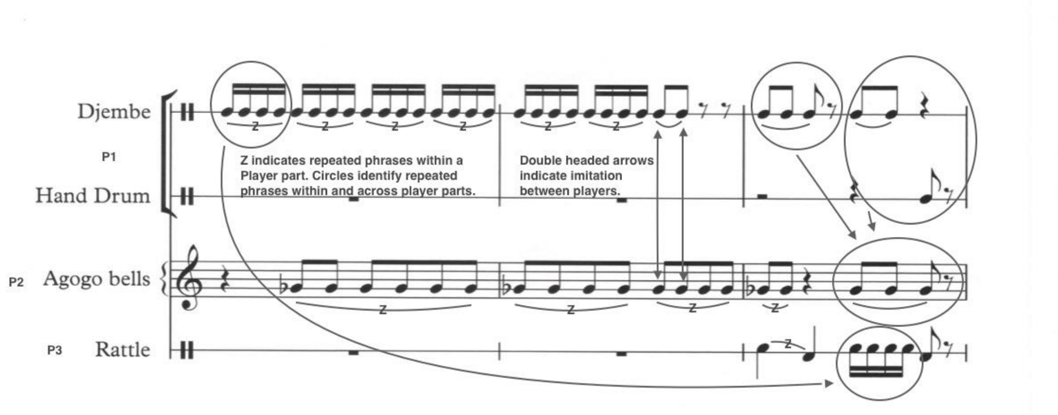


Diagram 10 Positioning of participants Case Study 5 non-tutored

Complete compositional product for Case Study 5 non-tutored

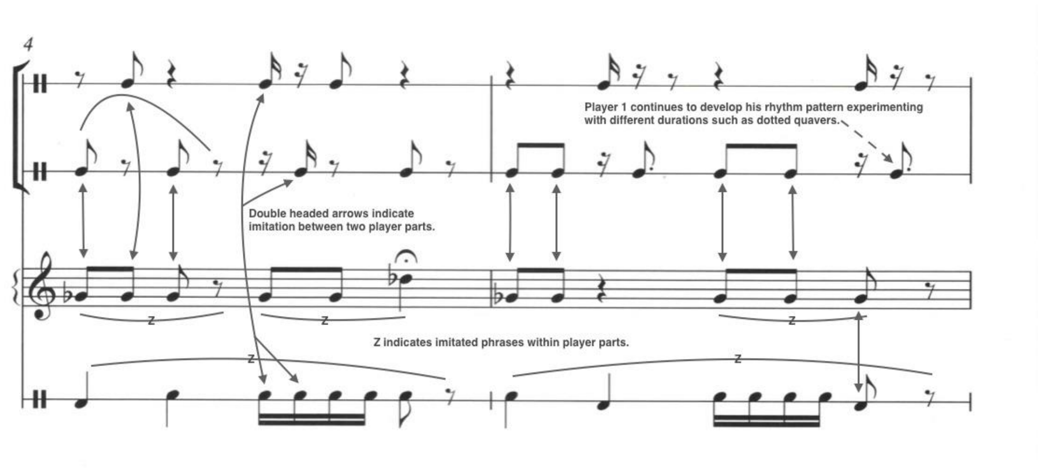
<u>Analytical Overview for Case Study 5 non-tutored</u>

The piece opens with a djembe drum roll accompanied by a beater being shaken inside the end of the Gb agogo bell. Players watch each other and player 1 (djembe) mouths *'1,2,3,4'* during these opening 2 bars after which point player 3 (rattle) enters on the rattle. The texture is reduced as player 1 (drums) reverts to single beats and player 2 (agogo bells) plays quaver beats as oppose to semi-quavers. This initial flurry of sound serves as introductory phrase.



Compositional Product Section: Introductory phrase for Case Study 5 non-tutored

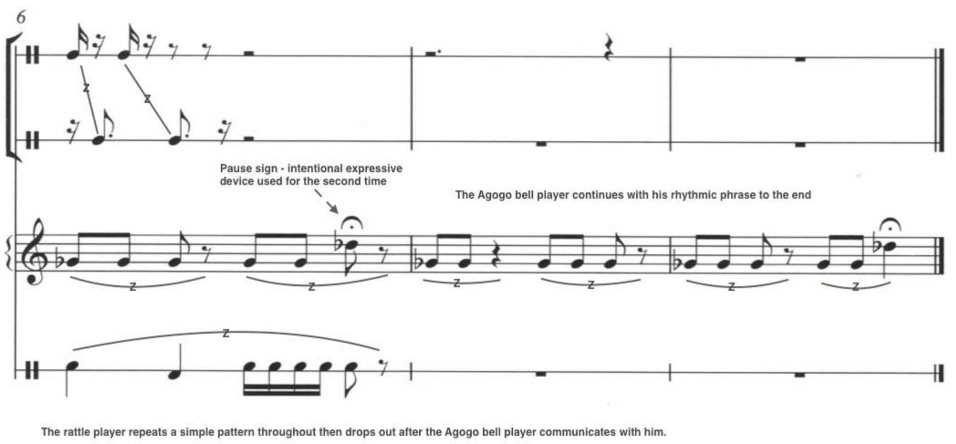
Player 3 (rattle) joins at bar three with a repeated pattern of semi-quaver and crotchet beats. As shown in the introductory phrase above, his rhythm can be identified as deriving from that of the djembe. Following the opening 2 bars, from bar 3 onwards player 2 (agogo bells) uses a repeated rhythm pattern, combining the use of pitch and rests. He experiments with different timbres, using the beater inside the bell and through tapping the bell on his thigh during rests – e.g. in bar 5.



Compositional Product Section 2 for Case Study 5 non-tutored

Player 1 splits his rhythmic ideas between the djembe and hand drum.

Below in section 3, the rhythmic patterns continue with players imitating each other and player 2 controlling the performance using deliberate expressive devices such as pauses (see bars 4 and 6). Player 2 (agogo bells) then indicates to player 3 (rattle) that he should finish –this is through leaning forward and waving his hand sharply across. Player 2 marks the finish with 3 repetitions of his motif before stating a loud solitary Db pitch.



Compositional Product Section 3 for Case Study 5 non-tutored

Sounds of Intent (Composing) Analysis

Research question 1 for Case Study 5:

1) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on the coherence of individual contributions to compositions, improvised in small groups?

This will be answered in 2 parts:

1a) Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

1b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

SoI Composing Analysis Proactive Composing (PC) Tutored

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuous self-imitation
PC4 Imitates own motifs	3	Three motifs identified
PC5 Uses scales and metrical patterns	3	3 different versions and all used consistently
PC6 Performs expressively	1	Same dynamic throughout

Table 5.1 Tutored: Proactive Composing Category score explanation for Wood Block

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuous self imitation
PC4 Imitates own motifs	1	One motif identified
PC5 Uses scales and metrical patterns	1	One identifiable pattern
PC6 Performs expressively	1	Maintains same dynamic throughout

Table 5.2 Tutored: Proactive Composing Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuous self-imitation
PC4 Imitates own motifs	1	One motif identifiable
PC5 Uses scales and metrical patterns	1	One pattern identified
PC6 Performs expressively	1	Maintains same dynamic.

Table 5.3 Tutored: Proactive Composing Category score explanation for Click-Clack

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Consistent self-imitation
PC4 Imitates own motifs	0	No identifiable motif
PC5 Uses scales and metrical patterns	1	Hits appear random and isolated so not really a 'pattern' but they do occur as quaver pairs 5 times.
PC6 Performs expressively	1	No awareness of expression; seems embarrassed / nervous at performance

Table 5.4 Tutored: Proactive Composing Category score explanation for Triangle

SoI Composing Analysis Proactive Composing (PC) Non-tutored

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuous self-imitation
PC4 Imitates own motifs	4	Each motif is imitated and then used to create the one that follows
PC5 Uses scales and metrical patterns	3	Three identifiable patterns
PC6 Performs expressively	1	No real awareness, but does engage with expressive directions from agogo bell Player

Table 5.5 Non-Tutored: Proactive Composing Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuous self-imitation
PC4 Imitates own motifs	3	Several small motifs with the higher bell pitch used as an indicator for the end of the motif.
PC5 Uses scales and metrical patterns	2	Two patterns identified – an initial pattern using repeated quavers then a longer pattern that is repeated 3 times.
PC6 Performs expressively	3	At the start plays quietly, then increases volume and directs use of pause.

Table 5.6 Non-Tutored: Proactive Composing Category score explanation for agogo Bells

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	Continuous self-imitation
PC4 Imitates own motifs	3	One extended motif used 4 times
PC5 Uses scales and metrical patterns	2	Repeats his pattern consistently.
PC6 Performs expressively	2	Through awareness of directions provided by another player and through crescendo created through the second half.

Table 5.7 Non-Tutored: Proactive Composing Category score explanation for Rattle

Response to Research Question 1a for Case Study 5:

Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

Both participant groups use of polyrhythm (more than one rhythm used simultaneously) emulates Cage's use of multiple combinations of durations. Whilst in Cage's piece, no single rhythm is heard twice in a row and rhythmic ideas are built upon each time, both of these Case Study examples use direct rhythmic repeats. There is musical coherence between and within individual parts seen in the frequent occurrence of zygonic relationships of duration.

Excerpt 40: Examples of zygonic relationships of duration and use of polyrhythm within parts of Case Study 5 tutored

Excerpt 41: Examples of zygonic relationships of duration and use of polyrhythm within parts for Case Study 5 non-tutored

There is little similarity between the two creative products in terms of the structure of rhythmic patterns. A greater variety of durational combinations occur in the non-tutored example (shown in their higher SoI (Composing) scores for level 4 Proactive Composing which measures the use of motifs and patterns Proactive Composing level 5). This indicates that although the groups responded differently to the stimulus, the stimulus cannot be identified as having a huge impact on their individual understanding of their part.

Response to Research Question 1b for Case Study 5:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

Both sets of participants, aside from the tutored triangle player who achieved consistently low scores, mix and imitate rhythmic ideas into a basic compositional structure. Whereas the tutored group maintain self-repetition of their own individual rhythm patterns, with only the tone block player creating any variation, the non-tutored participants extend and modify their individual ideas resulting in greater individual variation. Thus, in this example, it can be suggested that whether or not participants were tutored or non-tutored may have impacted upon the extent of ideas used when self-imitating.

Research question 2 for Case Study 5:

2) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on children's use of stimulus material during group composing?

This will be answered in 2 parts:

2a) In 9–11-year-old children's compositions is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

2b) In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on children's use of stimulus material during group composing?

SoI Composing Analysis Proactive using the Stimulus (PS) Tutored

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Repeated short sounds.
PS4 Imitates motifs from stimulus	2	Similarities to patterns heard in the Cage and he develops the rhythm so provides a variation
PS5 Uses scales and metrical patterns and structure from stimulus	2	Links with durational values (short) and dotted rhythms.
PS6 Imitates expression from performance of stimulus	1	There is dynamic variety and contrast within Cage not evident here.

Table 5.8 Tutored: Proactive Using the Stimulus Category score explanation for Wood Block

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	Uses a repeated pattern with a purposeful gap of silence at bar 8.
PS4 Imitates motifs from stimulus	1	The motif in part imitates certain durations heard from Cage.
PS5 Uses scales and metrical patterns and structure from stimulus	1	Some similarity to use of short durations
PS6 Imitates expression from performance of stimulus	1	Fairly quiet hitting of drum; no contrast or use of dynamic changes. Cage's sonata is full of dynamic contrasts.

Table 5.9 Tutored: Proactive Using the Stimulus Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Short repetitive sounds
PS4 Imitates motifs from stimulus	1	Uses one pattern with a dotted rhythm which is present in Cage in the idea of a long sound followed by a short one
PS5 Uses scales and metrical patterns and structure from stimulus	2	The constant repetition of his rhythm is like the repeated singular sound heard throughout Cage (although this is irregular). Only one identifiable pattern
PS6 Imitates expression from performance of stimulus	0	No contrasts or changes in dynamic.

Table 5.10 Tutored: Proactive Using Stimulus Category score explanation Rattle

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Random individual beats
PS4 Imitates motifs from stimulus	1	In terms of isolated sounds
PS5 Uses scales and metrical patterns and structure from stimulus	1	The random interspersion of the triangle sounds is relatable to the randomness of Cages' sonata.
PS6 Imitates expression from performance of stimulus	0	No evidence

Table 5.11 Tutored: Proactive Using the Stimulus Category score explanation for Triangle

SoI Composing Analysis Proactive using the Stimulus (PS) Non-Tutored

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	2	The djembe players' sounds gather momentum through the use of shorter durations as he continues.
PS4 Imitates motifs from stimulus	2	In the use of 4 steady quavers and the opening flurry of semi-quavers, which appear suddenly as a short group
PS5 Uses scales and metrical patterns and structure from stimulus	2	Repeated rhythm patterns that become more agitated, this is similar to the increased energy of the rhythms heard approx. 75 seconds into Cage.
PS6 Imitates expression from performance of stimulus	1	Not really – plays at the same volume throughout.

Table 5.12 Non-Tutored: Proactive Using the Stimulus Category score explanation Djembe

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	4	Repetition of same pitch. Use of beater rapidly inside end of bell during the beginning imitates short repetitive effect. Use of pause.
PS4 Imitates motifs from stimulus	2	Use of high and low pitch, increased energy towards the end.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Repeated pitch patterns, use of rests.
PS6 Imitates expression from performance of stimulus	2	Use of pause, louder playing at the end.

Table 5.13 Non-Tutored: Proactive Using the Stimulus Category score explanation Agogo bells

SoI (Composing) Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	4	Use of repeated rhythm pattern, which combines long and short durations.
PS4 Imitates motifs from stimulus	2	One extended motif using different durations.
PS5 Uses scales and metrical patterns and structure from stimulus	2	Uses a pattern that works in rhythmic contrast to the other players. This is heard within Shnee; whilst certain sounds remain constant other occur randomly.
PS6 Imitates expression from performance of stimulus	2	Loud and abrasive. He plays the rattle with force.

Table 5.14 Non-Tutored: Proactive Using the Stimulus Category score explanation Rattle

Response to Research Question 2a for Case Study 5:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

Tutored participants make use of short rhythmic phrases as heard in the Cage, but whilst Cage uses random sounds, a gradual build-up of texture and small motifs in the Prepared Piano sonata, tutored participant motifs are within a time signature of 4/4 and are strictly repetitive and predictable. There is also a lack of use of dynamics or expressive devices of which there are a great many within the sonata.

Non-tutored participants have higher SoI (Composing) scores for expression (Proactive using the Stimulus level 6), indicating that they may have responded to Cage's use of dynamic contrast, use of silence and different timbres. For tutored participants there were consistently low SoI (composing) scores for Proactive using the Stimulus level 6.

In summary, the impact of the stimulus on how participants use stimulus material is higher for the non-tutored group.

Response to Research Question 2b for Case Study 5:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on children's use of stimulus material during group composing?

Participants have used the stimulus differently; non-tutored participants have used fragments of sound intertwined with moments of individual rhythms and moments of imitation, whilst tutored participants have repeated structured rhythmic phrases, which provide examples of regular imitative material.

In summary, whether or not participants are tutored or non-tutored has affected the way in which they have used stimulus material in this example. Non-tutored participants have used more expressive devices than tutored and show greater sensitivity to the way in which different sounds work together, as opposed to mimicking each other.

Research question 3 for Case Study 5:

3) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of using experimental or traditional Western classical musical stimuli on the structure and content of 9-11 year olds group compositions?

This will be answered in 2 parts:

3a) Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's group compositions?

3b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's group compositions?

SoI Composing Analysis Evaluating the Product (EP) Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	This player uses rhythm more creatively than the other group members.
EP3b Manipulates qualities of sounds to create particular stated effects	1	Hits the tone block in the same fashion throughout
EP4a Repetition of motifs as a structural feature of the piece	3	Improvises using his 3 rhythmic variations amongst the other rhythms played
EP4b Uses motifs to create particular effects	2	His use of rhythmic variation creates different textures.
EP5a Uses scales, metrical patterns and form to create coherent structure	3	The 3 rhythms are essential in holding the piece together. He plays with a distinct pulse and beat.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	Possibly – through the opening and final 4 bars he is imitating the rattle.
EP6a Deliberately uses expressive effects to articulate structure	0	No evidence – he is looking around the room during the performance.
EP6b Deliberately uses conventional expressive devices to convey particular effects	0	No evidence. Plays at the same consistent volume and with the same timbre throughout.

Table 5.15 Tutored: Proactive Evaluating the Product Category score explanation for Wood Block

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	Repeats his 4 bar phrase twice
EP3b Manipulates qualities of sounds to create particular stated effects	1	Uses silence in the middle of the performance.
EP4a Repetition of motifs as a structural feature of the piece	2	Frames the 2 ‘sections’ of the piece using one pattern and rests.
EP4b Uses motifs to create particular effects	1	Only 1 motif heard
EP5a Uses scales, metrical patterns and form to create coherent structure	2	In terms of equal length phrases interspersed by a gap
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	He knows the placement of his pattern and it is not random, it contributes to the overall musical narrative occurring.
EP6a Deliberately uses expressive effects to articulate structure	1	Silence
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Silence

Table 5.16 Tutored: Proactive Evaluating the Product Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	Opens the piece and maintains the same sound for the duration of performance
EP3b Manipulates qualities of sounds to create particular stated effects	1	Same sound throughout
EP4a Repetition of motifs as a structural feature of the piece	1	One identifiable motif is repeated consistently but not developed
EP4b Uses motifs to create particular effects	1	To create a constant sound
EP5a Uses scales, metrical patterns and form to create coherent structure	2	Is told when to start and when to stop playing and simply repeats the same rhythm, however rhythm does contribute to overall structure.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	The consistency of the sound creates different textures when combined with the other players
EP6a Deliberately uses expressive effects to articulate structure	1	The tempo is stated and maintained
EP6b Deliberately uses conventional expressive devices to convey particular effects	0	None seen

Table 5.17 Tutored: Proactive Evaluating the Product Category score explanation for Rattle

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	1	Too random to provide any structure
EP3b Manipulates qualities of sounds to create particular stated effects	1	The sustained sound is a contrast to the non-sustained timbre of the other percussion
EP4a Repetition of motifs as a structural feature of the piece	0	There is repetition but it is not heard as an identifiable 'motif'
EP4b Uses motifs to create particular effects	0	No evidence
EP5a Uses scales, metrical patterns and form to create coherent structure	0	No evidence
EP5b Uses scales, metrical patterns and form to create meaningful narratives	1	Pattern of quaver pairs
EP6a Deliberately uses expressive effects to articulate structure	0	None seen
EP6b Deliberately uses conventional expressive devices to convey particular effects	0	None seen

Table 5.18 Tutored: Proactive Evaluating the Product Category score explanation for Triangle

SoI Composing Analysis Evaluating the Product (EP) Non-Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	The djembe part uses different rhythms to work alongside the other players resulting in him imitating others in part, but also working independently.
EP3b Manipulates qualities of sounds to create particular stated effects	3	He creates different timbres by using 2 drums with beaters and through using the edge and centre of the drum.
EP4a Repetition of motifs as a structural feature of the piece	4	He opens the piece with a forceful drum roll, motifs are then repeated and modified within the overall structure. In bar 4 he imitates the agogo bell for half a bar then the rattle for the remainder.
EP4b Uses motifs to create particular effects	3	The djembe improvises with his rhythms, creating different textures with the constant rhythms of the other players.
EP5a Uses scales, metrical patterns and form to create coherent structure	2	This part is used to state an opening and then rhythmically challenge the other parts through syncopation and subtle changes in repeated patterns.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	4	The narrative of the drum indicates that his part is the chaos amongst the constant; whereas the other parts are predictable, his uses changes that create a sense of randomness.
EP6a Deliberately uses expressive effects to articulate structure	2	Uses different sounding beats at particular points and opens phrases with alternate drum sounds.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	He plays loud for the most part.

Table 5.19 Non-Tutored: Proactive Evaluating the Product Category score explanation for Djembe

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	His extended motif is heard as the 'solo' part within this performance because it uses pitch.
EP3b Manipulates qualities of sounds to create particular stated effects	4	Uses the beater to imitate the drum roll at the start. Plays the higher pitched bell with extra force each time. Increases the number of beats as the motif progresses.
EP4a Repetition of motifs as a structural feature of the piece	3	The repeated motif structures the piece due to it being heard above everything else. The high pitch is used to indicate the end of a phrase and the motif is used as a solo at the end.
EP4b Uses motifs to create particular effects	4	Through the use of extending the motif with each group of quavers (2, 3, 3 then 4 if the high-pitched bell is counted as a crotchet) each time it is played.
EP5a Uses scales, metrical patterns and form to create coherent structure	3	The motif itself is the pattern imitated by the djembe and rattle at different durational points.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	3	The tune played in this part forms a clear 'voicing' through the performance. The other parts work alongside creating a polyrhythmic texture.
EP6a Deliberately uses expressive effects to articulate structure	2	Dynamic changes and pauses.
EP6b Deliberately uses conventional expressive devices to convey particular effects	2	Playing as a solo at the end, use of dynamic change.

Table 5.20 Non-Tutored: Proactive Evaluating the Product Category score explanation for Agogo

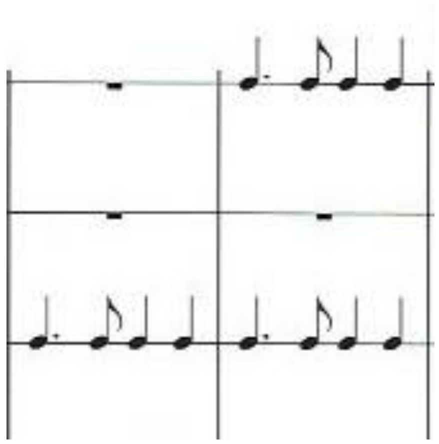
SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	5	The rattle part contrasts rhythmically with the other two parts and entering after everyone else, contributes to a change in texture.
EP3b Manipulates qualities of sounds to create particular stated effects	2	The part is played with force and is heard as an independent rhythmic line.
EP4a Repetition of motifs as a structural feature of the piece	3	The motif is used 4 times during what can be described as the central middle section of the performance (bars 4-5).
EP4b Uses motifs to create particular effects	2	The effect of the contrasting rhythm is that it coincides at different points with the other players resulting in a wide spectrum of sound 'colour.'
EP5a Uses scales, metrical patterns and form to create coherent structure	2	The pattern used combines long and short durations, part imitating the drum opening and then focussing on crotchet beats which are not used repetitively in the other parts.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	2	The narrative created is a third voice, which relates to but also acts as a contrasting factor within the overall sound.
EP6a Deliberately uses expressive effects to articulate structure	1	Only in the force of the first beat of each of his repetitions.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Barely – just loud.

Table 5.21 Non-Tutored: Proactive Evaluating the Product Category score explanation for Rattle

Response to Research Question 3a for Case Study 5:

Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's group compositions?

There are similarities between the two groups use of musical ideas to structure their compositions. For example, both have used a canonic style opening.



Excerpt 42: Use of canon in opening of the creative product for Case Study 5 tutored

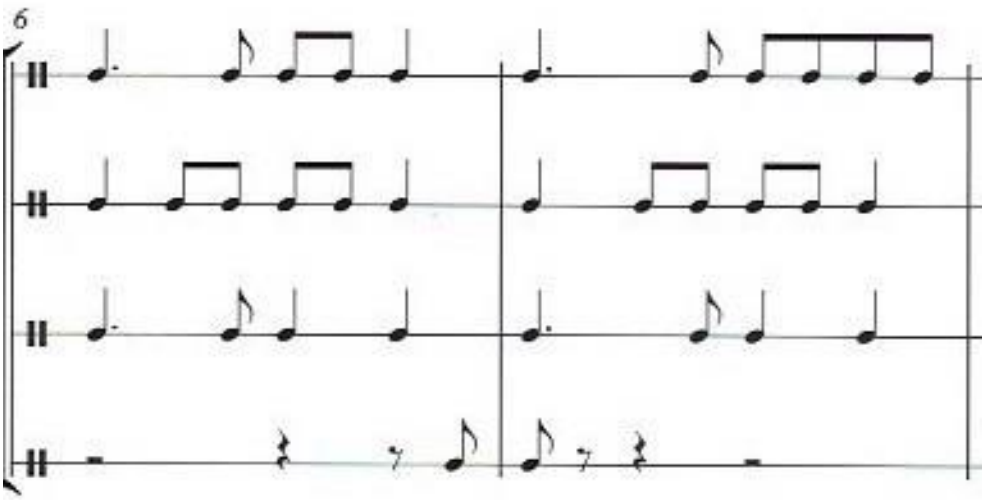
Excerpt 43: Canon-style opening of creative product for Case Study 5 non-tutored

Excerpts 42 and 43 above show the similarity (canon) and difference (in terms of use of content) in ideas between the two creative products. Although as seen in the Proactive using the Stimulus SoI (Composing) scores, both use elements of the sonata, the two products are vastly different. Therefore, the stimulus can be identified as having an influential impact on the musical content for either group, but that this impact has occurred differently.

Response to Research Question 3b for Case Study 5:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's group compositions?

The tutored group demonstrate that instrumental knowledge may have equipped the participants with the ability to use rhythmic motifs, canon and in the case of the tone block player musical variation, all of which form the structure of this composition. Although both groups have created a denser middle 'section' in their compositions, the excerpts below show the simplicity of the tutored product in comparison to the non-tutored:



Excerpt 44: Middle section of creative product for Case Study 5 tutored

Excerpt 45: Middle section of creative product for Case Study 5 non-tutored

When using the excerpts above as examples, whether or not participants have received instrumental lessons can be identified as potentially impacting how participants have used their ideas. This is supported in the higher SoI (Composing) scores for non-tutored participants within Evaluating the Product levels 4a - Repetition of motifs as a structural feature of the piece, 4b - Uses motifs to create particular effects, 5a - Uses scales, metrical patterns and form to create coherent structure and 5b - Uses scales, metrical patterns and form to create meaningful narratives. It is not necessarily that their rhythmic patterns are more complex, but rather how they have been used to create a composition that considers texture, timbre and the combined effect of musical events as opposed to the tutored groups' simpler individual repetition.

Research question 4 for Case Study 5:

4) In 9-11-year-old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on children's capacity to compose coherently with others?

This will be answered in 2 parts:

4a) Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in a group?

4b) Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in a group?

SoI Composing Analysis Interactive Composing (IC) Tutored

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	2	Opening rhythm is in part picked up by the djembe
IC3b Imitation of others' sounds	2	Beginning and ending of piece imitates the rattle, and similarities with djembe
IC4a Deliberately provides motifs to 'engage' others	3	Uses 3 different rhythmic motifs
IC4b Imitates others' motifs	2	Rattle and djembe
IC5a Deliberately provides scales and metrical patterns for others to imitate	3	Three notable patterns
IC5b Imitates others' use of scales and metrical patterns	2	Again, rattle and djembe
IC6a Deliberately plays expressively through the playing /performing of the composition	0	No evidence
IC6b Imitates others' expression whilst playing	1	Speed

Table 5.22 Tutored: Interactive Composing (IC) category score explanation for Tone Block

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	2	Deliberately faces players and plays at particular points
IC3b Imitation of others' sounds	2	Similarities in durations and rhythm
IC4a Deliberately provides motifs to 'engage' others	1	Motif is picked up in part by tone block
IC4b Imitates others' motifs	2	Yes, tone block and rattle
IC5a Deliberately provides scales and metrical patterns for others to imitate	1	One pattern which is in part imitated by tone block
IC5b Imitates others' use of scales and metrical patterns	2	The rhythm he uses is related, but both the rattle and tone block employ dotted rhythms, which the djembe does not do at any point.
IC6a Deliberately plays expressively through the playing /performing of the composition	0	No evidence
IC6b Imitates others' expression whilst playing	0	No evidence

Table 5.23 Tutored: Interactive Composing (IC) category score explanation for Djembe

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	3	Through the continuous playing of the one motif
IC3b Imitation of others' sounds	3	Direct imitation of tone block and in part other players.
IC4a Deliberately provides motifs to 'engage' others	1	States opening motif for others to follow
IC4b Imitates others' motifs	2	Direct imitation of tone block and similarity to djembe
IC5a Deliberately provides scales and metrical patterns for others to imitate	1	One identifiable pattern imitated by tone block and djembe.
IC5b Imitates others' use of scales and metrical patterns	2	On two occasions
IC6a Deliberately plays expressively through the playing /performing of the composition	0	No evidence
IC6b Imitates others' expression whilst playing	1	In terms of speed

Table 5.24 Tutored: Interactive Composing (IC) category score explanation for Click Clack

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	1	Possibly
IC3b Imitation of others' sounds	0	No evidence – the quavers used are at a different speed to other players and vary in speed when they are played.
IC4a Deliberately provides motifs to 'engage' others	0	No evidence
IC4b Imitates others' motifs	0	No evidence
IC5a Deliberately provides scales and metrical patterns for others to imitate	0	None seen
IC5b Imitates others' use of scales and metrical patterns	1	Possibly
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Possible intentional sustained sounds
IC6b Imitates others' expression whilst playing	0	No evidence

Table 5.25 Tutored: Interactive Composing (IC) category score explanation for Triangle

SoI Composing Analysis Interactive Composing (IC) Non-tutored

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	5	Opening roll imitated by agogo bells. Other rhythms used are imitated in part by both other players.
IC3b Imitation of others' sounds	5	Consistently at different points.
IC4a Deliberately provides motifs to 'engage' others	3	Continuously changes the rhythms being used, which challenges the consistency of the other parts.
IC4b Imitates others' motifs	3	At various points – see score.
IC5a Deliberately provides scales and metrical patterns for others to imitate	3	Three patterns identified which are at different points imitated.
IC5b Imitates others' use of scales and metrical patterns	4	Consistently, but again not whole sections, just moments of imitation that occur throughout.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Barely – perhaps the physical demands of using two drums negates this possibility.
IC6b Imitates others' expression whilst playing	2	Watches and engages with others, copies agogo changes in volume levels.

Table 5.26 Non-Tutored: Interactive Composing (IC) category score explanation for Djembe

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	5	Consistently
IC3b Imitation of others' sounds	4	At the opening with the djembe and at different points in the score throughout the performance – see double headed arrows in score analysis.
IC4a Deliberately provides motifs to 'engage' others	4	Motif used is played repetitively as a solo line
IC4b Imitates others' motifs	3	Rhythmically there is constant imitation happening between players.
IC5a Deliberately provides scales and metrical patterns for others to imitate	3	Parts of the motif used are imitated rhythmically at different points during the performance by the other players.
IC5b Imitates others' use of scales and metrical patterns	4	Yes rhythmically there is direct imitation as indicated by the arrows in the score analysis for the duration of the performance.
IC6a Deliberately plays expressively through the playing /performing of the composition	3	Dynamic shading appears deliberate, use of pause and accent is clearly deliberate.
IC6b Imitates others' expression whilst playing	2	Plays loudly from bar 3, similarly to rattle player.

Table 5.27 Non-Tutored: Interactive Composing (IC) category score explanation for Agogo Bells

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	5	Sounds used are picked up by both other players – see score analysis.
IC3b Imitation of others' sounds	3	Imitation of semi-quavers provided at the start by djembe. Imitation of rhythm consistently with the agogo bell part.
IC4a Deliberately provides motifs to 'engage' others	3	Motif is repeated exactly despite rhythmic changes in djembe part and this maintains the independent but coherently enmeshed voice of the part.
IC4b Imitates others' motifs	3	At different points in the score – see arrows.
IC5a Deliberately provides scales and metrical patterns for others to imitate	3	Repeated pattern is limited due to nature of instrument, but is used consistently.
IC5b Imitates others' use of scales and metrical patterns	2	Yes at the points indicated.
IC6a Deliberately plays expressively through the playing /performing of the composition	2	Plays consistently loudly – this is perhaps because he needs to focus and hear the part amongst the other sounds.
IC6b Imitates others' expression whilst playing	2	Imitates the agogo bells from bar 3.

Table 5.28 Non-Tutored: Interactive Composing (IC) category score explanation for Rattle

Response to Research Question 4a for Case Study 5:

Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in a group?

Both participant groups in this example demonstrate self and within group imitation, indicating that levels of musical collaboration were occurring consistently. When comparing this creative response to both groups' other compositional responses (see appendices non-tutored case studies A4

Experimental and A18 Classical and tutored case studies A2 Experimental and A13 Classical) the non-tutored group had made considerable increase in their Interactive Composing scores over the three repeats of the task, whilst the tutored group had started at a higher level of musical collaboration than the non-tutored but had not progressed beyond this by the third repeat of the task. Considering all SoI (Composing) Interactive Composing scores for these groups throughout the study, levels of collaboration in this particular example cannot be attributed solely to an impact of the musical stimulus.

Response to Research Question 4b for Case Study 5:

Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in a group?

When comparing the tutored and non-tutored compositional responses within this example, there is evidence of primary and secondary zygonic relationships of duration occurring in both creative products, and evidence of zygonic relationships of pitch within the non-tutored product. The musical difference between them is more complex than simply measuring imitation. The SoI (Composing) scores for the PC and PS (Proactive Composing and Proactive using the Stimulus) are not greatly different between the two groups, but there is a greater disparity between the SoI (Composing) scores for Evaluating the Product and Interactive Composing. Whilst the non-tutored group have used musical elements beyond mimicking each other, such as speed changes and use of silence, which has increased their scores in the Evaluating the Product and Interactive Composing SoI scoring categories, the tutored group have not. In this particular example, the tutored triangle player scored 0 for several aspects of the Interactive

Composing category, (see table 5.25 Tutored), which was not the case for any non-tutored participants. In summary, whether or not participants were tutored or non-tutored in this example may have impacted upon their capacity to compose in a group, due to the tutored group's higher frequency of not just musical imitation, but development of musical ideas in coherence with each other, unlike the tutored participants.

<u>5.3.6 Case Study 6 Low Scoring Experimental</u>

Part 1: Low Scoring Tutored Experimental Stimulus (Performance length: 28 seconds)

Diagram 11 shows positioning of participants for case study 6 tutored:

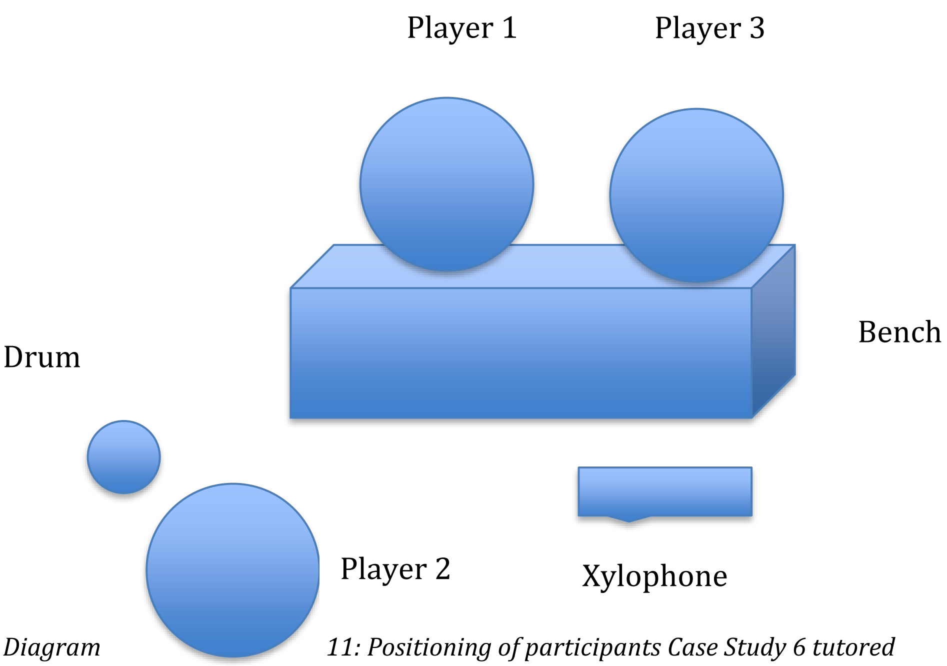
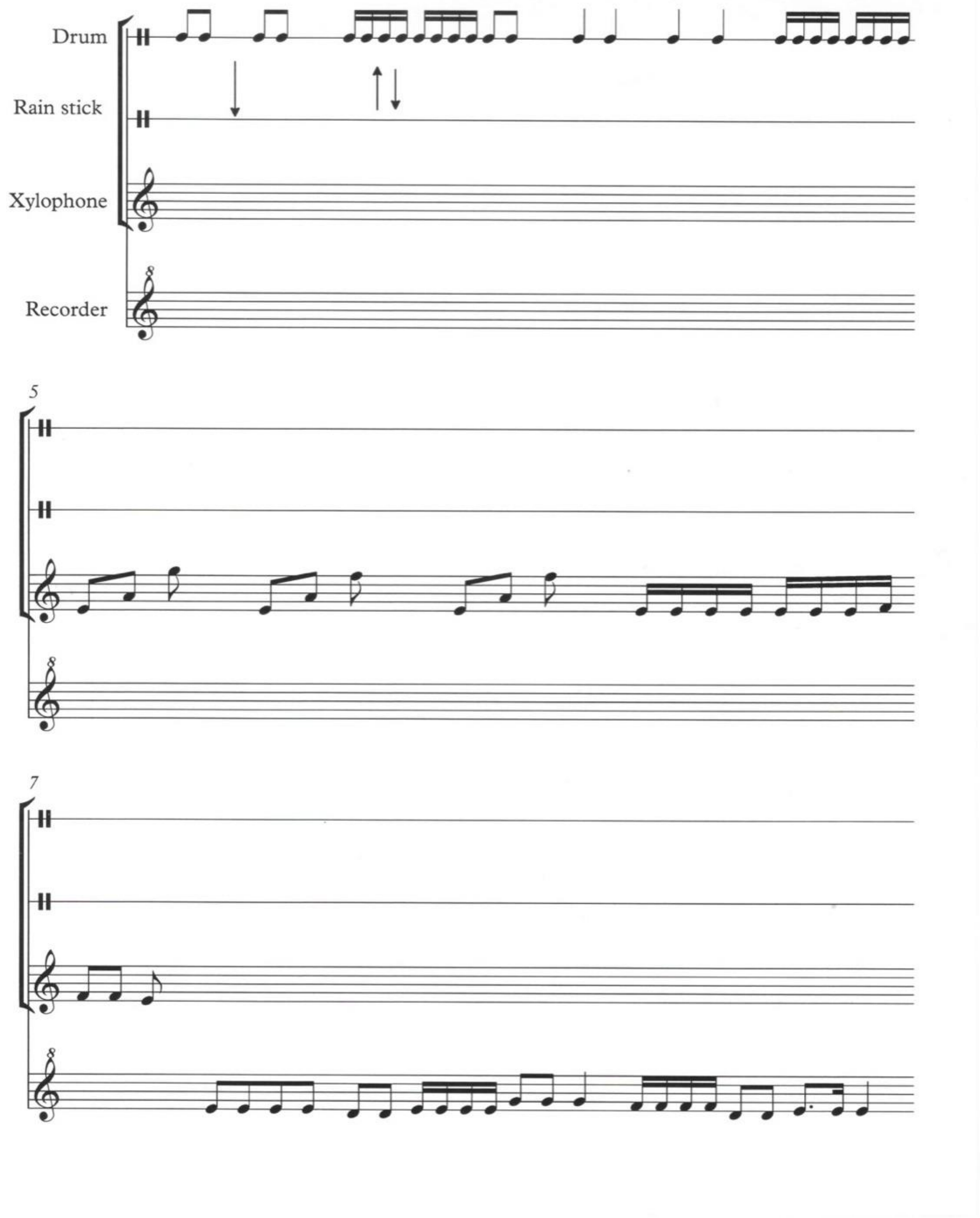


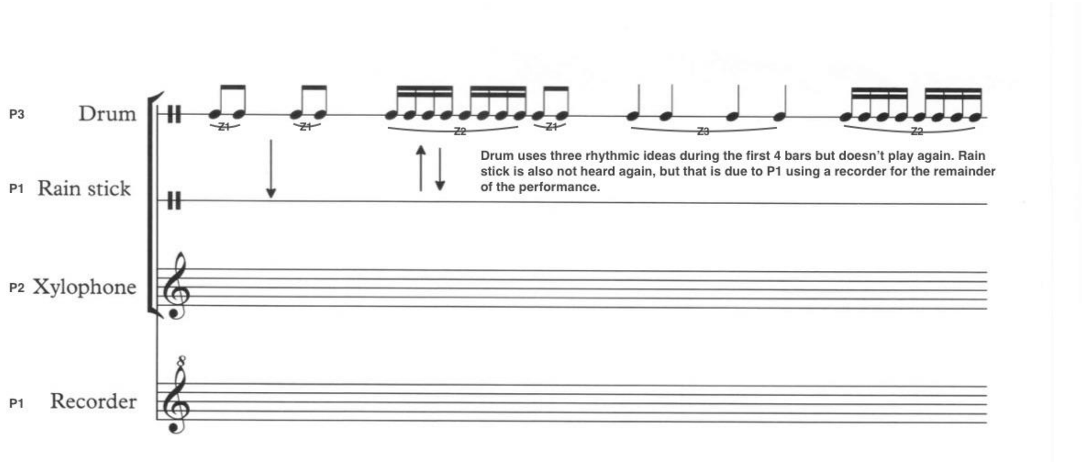
Diagram 11: Positioning of participants Case Study 6 tutored



Complete Compositional Product for Case Study 6 tutored

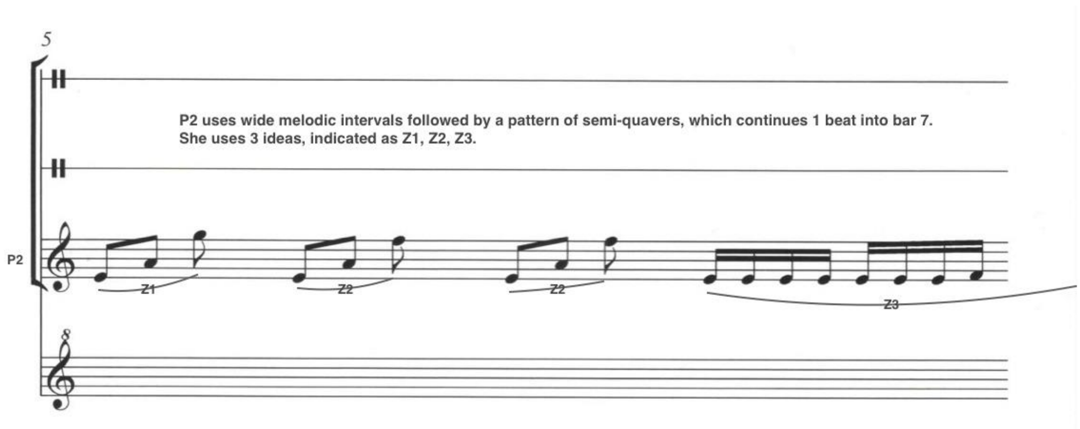
<u>Analytical Overview for Case Study 6 tutored</u>

This groups' response to Abrahamsen is similar to their Chopin response (see case study 2) and uses isolated solos for each player. Player 3 opens the performance using a hand drum, which is accompanied by some uncertain motions from player 1 on a mini rain-stick.



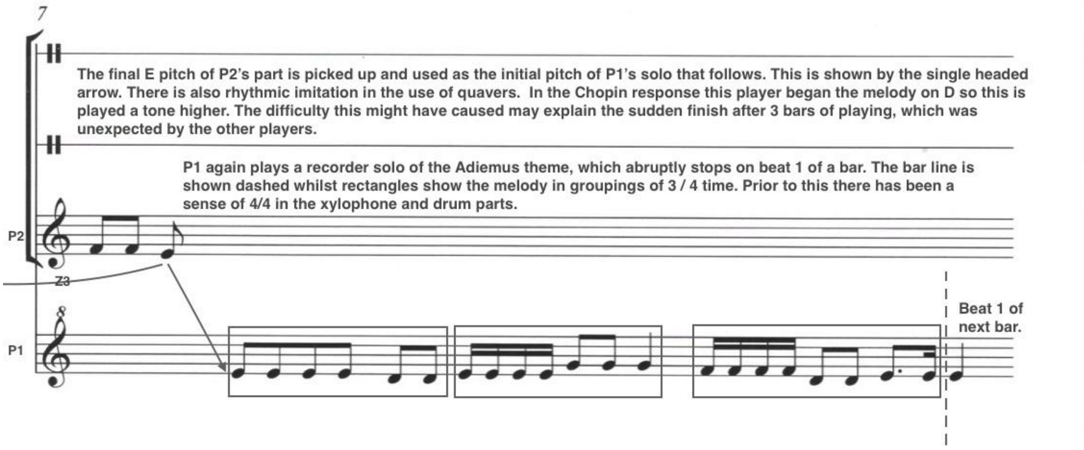
Compositional Product Section 1 for Case Study 6 tutored

Following the second pattern of semi-quaver drumming, player 2 (xylophone) plays wide melodic intervals on the xylophone. Pitch E is the opening, ending and most frequent pitch used, and there is some rhythmic imitation to the drum part in the use of semi-quavers in bar 6. The xylophone part is played loudly and forcefully with a distinct sense of 2/4 time.



Compositional Product Section of xylophone solo for Case Study 6 tutored

The last E pitch is used by player 1 to open her recorder solo, which again is a variation of the 'Adiemus' theme tune from Karl Jenkins' work 'Songs of Sanctuary', as in case study 2.



Compositional Product Section showing the end of xylophone solo and recorder solo for Case Study 6 tutored

Unlike the Chopin response (where the theme was heard in full) the Karl Jenkins theme starts with quavers instead of semi-quavers, is in a different key, and omits certain pitches and beats from the original (e.g. after the 4 semi-quavers on F, if following the original version there would be 2 more semi-quavers before moving to D quavers). This could be an indication of an attempt to develop this theme, but the player is not confident and the solo stops abruptly, on beat 1 of what would constitute bar 10. Players 2 and 3, having stared at the score during the recorder solo, look up at player 1 surprised. Player 1 looks embarrassed and shakes her head mouthing ‘no’, whilst player 3 tentatively takes hold of another rain stick, as if to play it, but does not. It can be assumed from the players’ actions that there was an expectation that the piece should continue. As in their Chopin response, this group have divided the playing between them as 3 separate solos.

Part 2 case study 6: Low-Scoring Non-Tutored Experimental Stimulus (Performance Length: 20 seconds)

This short performance uses 4 instruments: shaker, claves, triangle and drum, played in succession then together. Diagram 12 shows the positioning of the participants.

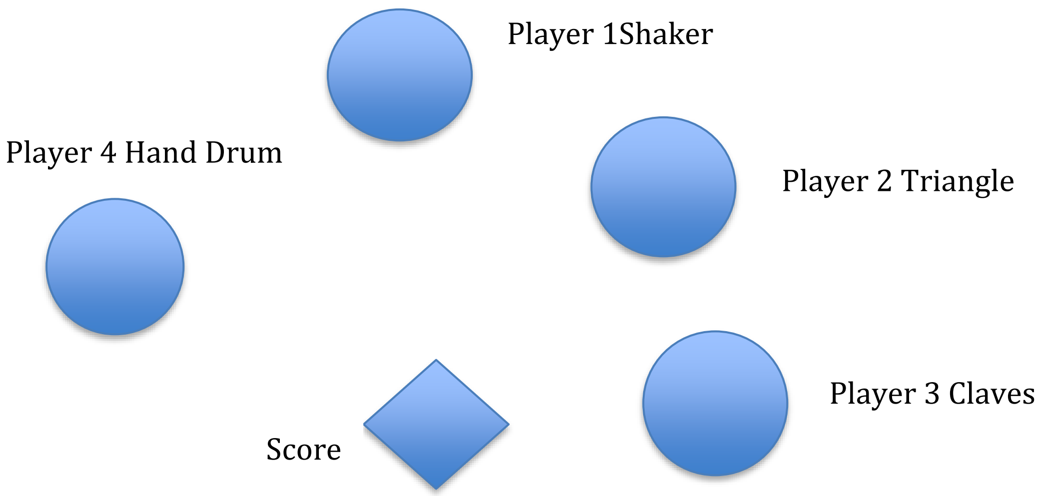
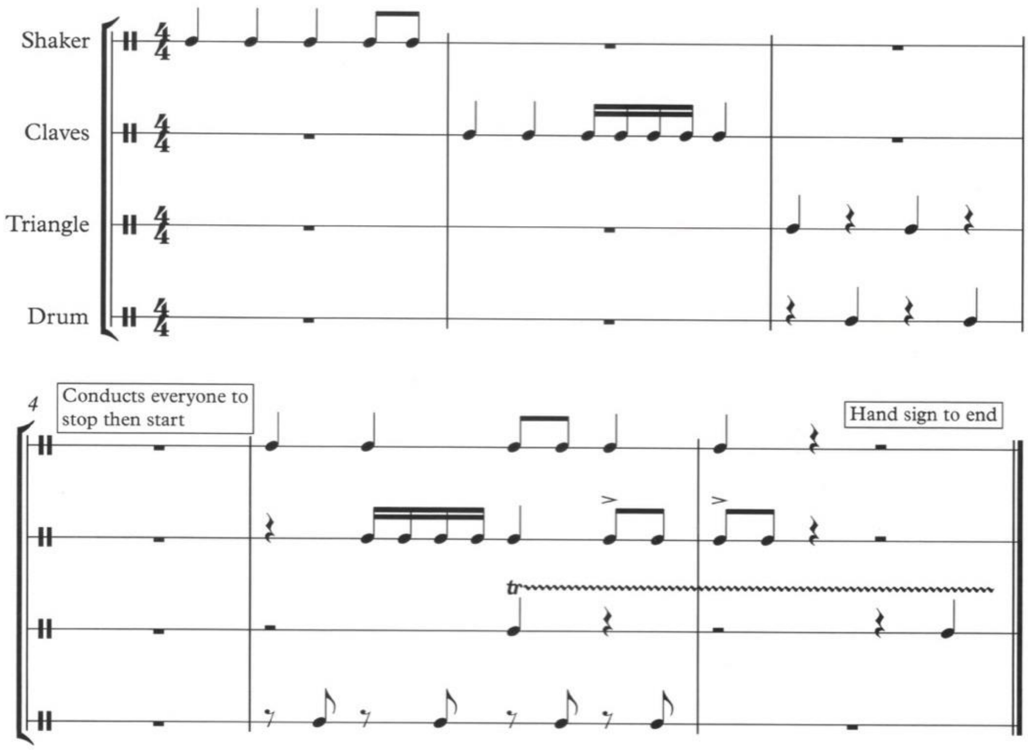


Diagram 12 Positioning of participants Case Study 6 non-tutored

<u>Analytical Overview for Case Study 6 non-tutored</u>

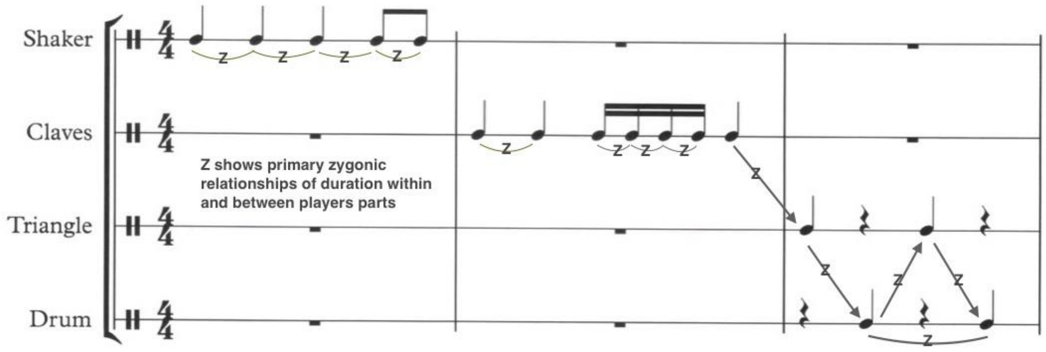
The composition is brief, and its structure consists of individual sounds (in the order of shaker, claves, triangle, drum) followed by all sounds combined made somewhat coherent by the presence of a consistent pulse. There is imitation between the drum and triangle and the emergence of imitative patterns between shaker and claves, however the piece is too brief (20 seconds) for any of these ideas to develop further. This piece is dominated by the actions of player 1 who provides musical material for the other players to imitate and respond to.



Complete Compositional Product for Case Study 6 non-tutored

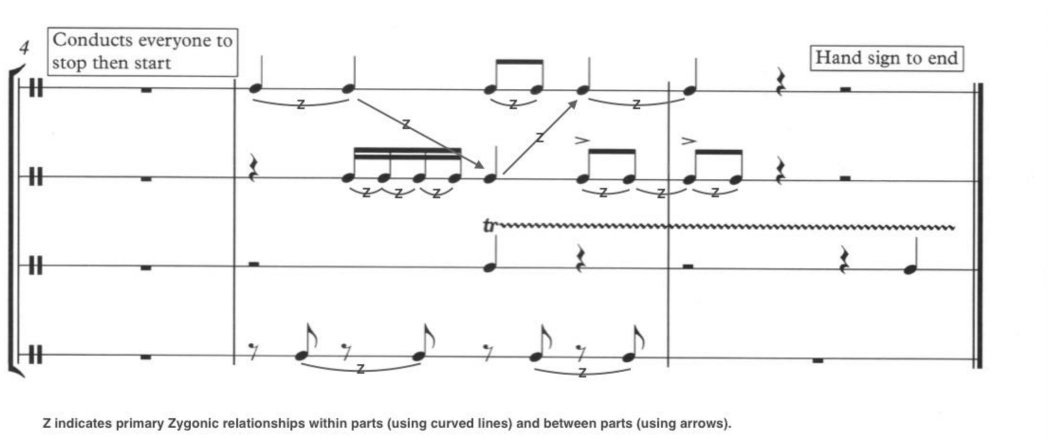
Analytical Overview for Case Study 6 non-tutored (continued)

Player 1 (shaker) verbally sets a pulse whispering *'1,2,3,4'* then plays the opening rhythm (see bar 1) followed by indicating to everyone in turn when they should begin playing. He then stops the music for a count of 4 (see bar 4) and re-starts the music (see bar 5) using hand gesticulations. Player 3 (claves) responds to player 1's opening rhythm by imitating the first 2 crotchet beats (see bar 2) followed by a variation of this idea in bars 5-6, where again he imitates player 1 with the use of quaver pairs.



Compositional product section: Imitation between the shaker and claves parts in the opening bars for Case Study 6 non-tutored.

Player 1's physical position appears hierarchical to the other player's as he sits above them, using large and expressive gestures. Player 2 (triangle) engages in a simple level of musical activity throughout the performance contributing just 4 beats on a triangle, from bar 3 whereby he alternates crotchet beats with player 4 on the drum. He displays a lower level of confidence than player 2 (claves) in terms of not being so keen to look at the video and seating himself next to player 1 and relying on all performance instructions from him and watches other members of the group during the performance. Player 4 (drum) contributes at a similarly simplistic level as player 3 (triangle) and plays 6 drumbeats during this performance. These are played in response to player 3 (claves) in bar 3 on the off-beats 2 and 4 of the 4 beat bar, which he then develops into an attempt to play on the off-beat to player 1 (shaker) in bar 5 but is unable to do this accurately resulting in 'random' hitting of the drum.



Compositional product section demonstrating imitation in bars 4-6 for Case Study 6 non-tutored

As the contributions from the drum and triangle player are so brief, their scoring details are included only in the appendices, however their actions are commented on within this analysis.

Sounds of Intent (Composing) Analysis Case Study 6

Research question 1 for Case Study 6:

1) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing experimental or traditional Western classical musical stimuli on the coherence of individual contributions to compositions, improvised in small groups?

This will be answered in 2 parts:

1a) Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

1b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

SoI Composing Analysis Proactive Composing (PC) tutored

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	3	For the two bars that she plays there is self-imitation.
PC4 Imitates own motifs	2	Within 2 bars she manages to create 3 ideas, one of which is repeated twice (Z2).
PC5 Uses scales and metrical patterns	2	Two patterns identified.
PC6 Performs expressively	1	Concentrating on navigating across the wide melodic intervals so little evidence of expression.

Table 6.1 Tutored: Proactive Composing Category score explanation for Xylophone

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	5	For the 11 beats that are played there is consistent self-imitation.
PC4 Imitates own motifs	2	Difficult to distinguish a motif, but could be groups of 4/4 time. Groups of durations such as semi-quavers are repeated.
PC5 Uses scales and metrical patterns	2	2 patterns are identified.
PC6 Performs expressively	1	Plays intentionally quietly.

Table 6.2 Tutored: Proactive Composing Category score explanation for Drum

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	3	Uses the rain-stick but only briefly, recorder part is self-imitative.
PC4 Imitates own motifs	2	Motif is repeated one and a half times at a different pitch through bars 8-10.
PC5 Uses scales and metrical patterns	2	Two patterns identified.
PC6 Performs expressively	1	Phrases are executed with skill.

Table 6.3 Tutored: Proactive Composing Category score explanation for Recorder

SoI Composing Analysis Proactive Composing (PC) Non-Tutored

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	3	Although brief, repeated durations are used.
PC4 Imitates own motifs	2	Motif is only heard twice, but the second version directly derives from the first
PC5 Uses scales and metrical patterns	2	Two versions of same pattern
PC6 Performs expressively	1	Maintains forte dynamic

Table 6.4 Non-Tutored: Proactive Composing Category score explanation for Claves

SoI Category and Criteria	Score given (Scale 0-5)	Reason for score
PC3 Imitates own sounds	3	Consistently although brief
PC4 Imitates own motifs	2	Two rhythms heard
PC5 Uses scales and metrical patterns	2	Two identifiable patterns heard
PC6 Performs expressively	2	Starts soft then loud on both moments of playing.

Table 6.5 Non-Tutored: Proactive Composing Category score explanation for Shaker

Response Research Question 1a for Case Study 6:

Is there an impact, and, if so, what is the nature of the impact of using experimental or traditional Western classical music as stimuli on the coherence of 9–11-year-old children's individual contributions to compositions, improvised in small groups?

The similarity of the tutored group response in comparison to their previous attempt (see case study 2) indicates that the experimental stimulus has not resulted in a different creative response than the classical stimulus in the last example, thus it is fair to say that the individual contributions of players in this tutored group are no different with contrasting stimuli. Non-tutored individual contributions although somewhat exploratory, are conceived at an extremely basic level in comparison to their other responses (see case study 2 classical and case study 4 experimental). Given that this non-tutored group have achieved low, medium and high scoring over the three repeats of the task, levels of individual coherence cannot be linked to the stimulus. Thus, in this example the impact of the stimulus on individual contributions for both groups is considered to be low.

Response to Research Question 1b for Case Study 6:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the coherence of 9–11-year-old children's individual contributions to group composing?

For this particular tutored group, this composition is less coherent than their previous Chopin response (see case study 2), implying that their instrumental knowledge has not assisted in increasing their development of musical ideas, although the execution of the xylophone and recorder demonstrates instrumental expertise in terms of technical skill.

Comparably the non-tutored group use very basic rhythmic patterns, which indicates their lack of instrumental skill, but do make an attempt to play together and link their ideas, as opposed to playing solo lines. Unlike the tutored example, which is heard as fragmented, this creates a sense of basic ‘coherence’ as there are identifiable moments of imitative musical interaction.

Thus, in this example whether or not participants are tutored or non-tutored has impacted the coherence of individual participants, as tutored participants have contributed separately to their group response, whereas non-tutored participants have responded to each other, although their musical ideas are simpler.

Research question 2 for Case Study 6:

2) What is the impact of having or not having instrumental lessons and of using experimental or traditional Western classical musical stimuli on 9-11 year olds use of stimulus material during group composing?

This will be answered in 2 parts:

2a) In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

2b) In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on children's use of stimulus material during group composing?

SoI Composing Analysis Proactive using the Stimulus (PS) Tutored

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Use of isolated percussive sounds.
PS4 Imitates motifs from stimulus	1	Use of high and low pitch.
PS5 Uses scales and metrical patterns and structure from stimulus	1	Repetitive percussive sounds with pitch as in semi-quavers bar 6.
PS6 Imitates expression from performance of stimulus	1	Use of a solo line.

Table 6.6 Tutored: Proactive Uses Stimulus Category score explanation Xylophone

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Repeated isolated sounds.
PS4 Imitates motifs from stimulus	1	Groups of different durations in bars 1-4 can be related to the multitude of durations heard in Schnee.
PS5 Uses scales and metrical patterns and structure from stimulus	1	Short repeated patterns for first 4 bars only.
PS6 Imitates expression from performance of stimulus	1	Plays quietly, Schnee begins very quiet.

Table 6.7 Tutored: Proactive Using the Stimulus Category score explanation Drum

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	High pitches as those heard in first 2 minutes of Schnee.
PS4 Imitates motifs from stimulus	0	No evidence
PS5 Uses scales and metrical patterns and structure from stimulus	0	No evidence
PS6 Imitates expression from performance of stimulus	0	No change in dynamics and phrases are a predictable length unlike Schnee where phrases do not end and start with structure.

Table 6.8 Tutored: Proactive Using the Stimulus Category score explanation Recorder

SoI Composing Analysis Proactive using the Stimulus (PS) Non-tutored

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Combination of short durations and use of silence
PS4 Imitates motifs from stimulus	1	None directly, but alternating timbres does feature in Cages prepared piano.
PS5 Uses scales and metrical patterns and structure from stimulus	1	As in short rhythmic patterns
PS6 Imitates expression from performance of stimulus	2	Isolated then combined sounds are similar to the build up of texture heard in the sonata.

Table 6.9 Non-Tutored: Proactive Using the Stimulus Category score explanation for Claves

SoI Category and Criteria	Score given (Scale 0-5)	Reason for Score
PS3 Imitates sounds from stimulus	1	Variety of durations used
PS4 Imitates motifs from stimulus	2	Again, the use of individual sounds followed by silence then a flurry of several sounds is imitative of parts of the sonata.
PS5 Uses scales and metrical patterns and structure from stimulus	1	As in short rhythmic patterns
PS6 Imitates expression from performance of stimulus	2	The player uses crescendo and diminuendo within his own playing and conscious use of silence.

Table 6.10 Non-Tutored: Proactive Using the Stimulus Category score explanation for Shaker

In response to Research Question 2a for Case Study 6:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, on children's use of stimulus material of experimental or traditional Western classical music during group composing?

Tutored participants response to the experimental stimulus has resulted in a very similar response to the previous classical stimulus, (see Case Study 2 tutored) as they have used pre-learnt material. Their first task response (see appendices case study A8) uses canon and is more imitative, but as this approach is not repeated in the two further task repeats, it cannot be attributed to the stimulus. Similarly, non-tutored participants make sparse references to Cage's prepared piano piece with randomly placed isolated sounds, followed by a gradual thickening of texture with simultaneous sounds and use of silence. Their further compositional responses are more musically developed, but again do not show extensive use of stimulus material. This indicates that the stimulus is not influential on the way that these groups use stimulus material.

Response to Research Question 2b for Case Study 6:

In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons on children's use of stimulus material during group composing?

Tutored participants in this response have shown some basic references to the Experimental stimulus, but neither the xylophone or drum player have developed their ideas, and nor do players combine their ideas at any point. The tutored recorder player is again using pre-learnt material (Adiemus by Karl Jenkins).

Non-Tutored participants demonstrate limited technical ability with the instruments they are using, however their SoI (Composing) Proactive using the Stimulus scores are slightly higher than tutored participants because they have made more frequent use of aspects of Cage’s music such as silence, combined timbres and durations, and musical devices such as accents. Therefore, it can be speculated that whether or not participants receive instrumental tuition has impacted upon the conceptualisation of and use of stimulus material in this example and has had a marginally greater impact on non-tutored participants.

Research question 3 for Case Study 6:

3) What is the impact of having or not having instrumental lessons and of using experimental or traditional Western classical musical stimuli on the structure and content of 9-11 year olds group compositions?

This will be answered in 2 parts:

3a) Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's compositions, improvised in small groups?

3b) Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's compositions, improvised in small groups?

SoI Composing Analysis Evaluating the Product (EP) Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	1	Provides 4 bars of sound after the drum but doesn't emerge as a structural feature as is not heard again.
EP3b Manipulates qualities of sounds to create particular stated effects	1	Uses wide then close melodic intervals, which adds interest.
EP4a Repetition of motifs as a structural feature of the piece	1	Repeated motif is only relevant to the 4 bars of playing as it does not occur elsewhere.
EP4b Uses motifs to create particular effects	1	Difficult to judge due to brevity of part.
EP5a Uses scales, metrical patterns and form to create coherent structure	1	Patterns used do occur elsewhere, but in a different time grouping therefore coherence is lost.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	1	Again a 'narrative' could be heard within the 4 bars but lacks meaning as not heard again.
EP6a Deliberately uses expressive effects to articulate structure	0	No expressive effects employed.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Arguably loud playing after soft drums creating contrast.

Table 6.11 Tutored: Proactive Evaluating the Product Category score explanation for Xylophone

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	2	Provides the opening statement of sound, along with rain stick. Use of semi-quavers, which are then consistently used.
EP3b Manipulates qualities of sounds to create particular stated effects	1	Plays quietly.
EP4a Repetition of motifs as a structural feature of the piece	1	Difficult to distinguish motif but durations are repeated.
EP4b Uses motifs to create particular effects	1	To create a contrasting timbre.
EP5a Uses scales, metrical patterns and form to create coherent structure	1	Patterns used rhythmically similar to those of other parts so contribute to overall structure.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	1	Opening statement is coherent, but too short to develop a meaningful narrative.
EP6a Deliberately uses expressive effects to articulate structure	0	No evidence of effect that articulate structure.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Use of quiet tapping.

Table 6.12 Tutored: Proactive Evaluating the Product Category score explanation for Drum

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	1	Uses rain stick at the beginning but stops abruptly. There is repetition within the structure of the recorder solo but only plays for last 3 bars so these sounds doesn't emerge as a structural feature.
EP3b Manipulates qualities of sounds to create particular stated effects	1	Uses rain stick softly.
EP4a Repetition of motifs as a structural feature of the piece	1	Motif used does not relate structurally to previous ideas, so cannot be described as a structural feature, however the solo repetition of the motif creates coherence.
EP4b Uses motifs to create particular effects	0	No evidence of use of motif for effect.
EP5a Uses scales, metrical patterns and form to create coherent structure	1	Barely – the part is very short and finishes unexpectedly on the first beat of a repetition. There is no tangible form.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	1	Narrative of something already known emerges, but brevity makes form difficult to create.
EP6a Deliberately uses expressive effects to articulate structure	0	No evidence.
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Plays with skill.

Table 6.13 Tutored: Proactive Evaluating the Product Category score explanation for Recorder/Rain Stick

SoI Composing Analysis Evaluating the Product (EP) Non-Tutored

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	2	Repeated rhythm pattern is part of overall structure.
EP3b Manipulates qualities of sounds to create particular stated effects	2	Maintains a loud dynamic throughout. Uses accents.
EP4a Repetition of motifs as a structural feature of the piece	2	He repeats the motif twice
EP4b Uses motifs to create particular effects	0	No evidence
EP5a Uses scales, metrical patterns and form to create coherent structure	1	The pattern used is essential to the overall sound of the piece, but the performance is so short structure of any real kind is negligible.
EP5b Uses scales, metrical patterns and form to create meaningful narratives	0	Not possible with such brevity
EP6a Deliberately uses expressive effects to articulate structure	0	No evidence
EP6b Deliberately uses conventional expressive devices to convey particular effects	1	Counts through the silent bar with awareness, plays with deliberation at certain points. Uses accents.

Table 6.14 Non-Tutored: Proactive Evaluating the Product Category score explanation for Claves

SoI (Composing) Category and Criteria	Score Given (Scale 0-5)	Reason for Score
EP3a Repetition of sound as a structural feature	2	He opens the piece with a rhythm which then influences what follows
EP3b Manipulates qualities of sounds to create particular stated effects	3	Through the use of silence, dynamics within his own playing and the ending.
EP4a Repetition of motifs as a structural feature of the piece	2	Motif heard twice, slightly different on repeat.
EP4b Uses motifs to create particular effects	1	Once to start the piece
EP5a Uses scales, metrical patterns and form to create coherent structure	1	To create a different texture during bars 5-6
EP5b Uses scales, metrical patterns and form to create meaningful narratives	0	The performance is too brief for this to develop in any meaningful way
EP6a Deliberately uses expressive effects to articulate structure	3	He directs the isolated sounds then the silent bar followed by everybody playing. It is clear from the footage that all of this is intentional.
EP6b Deliberately uses conventional expressive devices to convey particular effects	2	Use of dynamic changes and silence

Table 6.15 Non-Tutored: Proactive Evaluating the Product Category score explanation for Shaker

Response to Research Question 3a for Case Study 6:

Is there an impact, and, if so, what is the nature of the impact of experimental or traditional Western classical music on the structure and content of 9–11-year-old children's compositions, improvised in small groups?

Both groups produce very little content in these examples. Neither piece uses a clear musical 'structure' and the lack of identifiable zygonic relationship of musical events has resulted in low Evaluating the Product (EP) scores. The tutored example has achieved particularly low EP scores, as there is no repetition of player ideas. The structure is fragmented, and ideas are heard in isolation.

Non-tutored participants consciously use each sound alone (in the prepared piano sonata different sounds are heard individually at the start) followed by the use of silence (within Cage's music there is a short silence before multiple sounds occur simultaneously) followed by all sounds together. Therefore, it can be suggested that there is an emergence of structure within their ideas but there is so little musical material this structure barely audible.

Response to Research Question 3b for Case Study 6:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons on the structure and content of 9–11-year-old children's compositions, improvised in small groups?

It can be suggested from these creative responses that instrumental tuition has influenced the structure and content of these participants' compositions.

Tutored participants have used their own instruments to compose three solo performances tagged together. Instrumental skills have not, in this case, increased appeared to increase participants' propensity to develop musical ideas coherently.

Non-tutored participants performance lacks technical skill, but there is evidence of a more definitive musical 'structure' than in the tutored example. In summary, instrumental tuition appears to have impacted upon the structure and content of participants' compositions, in this particular example, with non-tutored participants demonstrating more awareness of and response to the musical contributions of each other than tutored participants.

Research question 4 for Case Study 6:

4) In 9-11 year old children's compositions, is there an impact and if so, what is the nature of the impact, of having or not having instrumental lessons and or using experimental or traditional Western classical musical stimuli on children's capacity to compose coherently with others in small groups?

This will be answered in 2 parts:

4a) Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in small groups?

4b) Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in small groups?

SoI Composing Analysis Interactive Composing (IC) Tutored

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	1	Sounds provided are rhythmically imitated in part by other players.
IC3b Imitation of others' sounds	1	Only rhythmically.
IC4a Deliberately provides motifs to 'engage' others	2	Motif produced is not imitated by other players, but repeated 'E' semi-quavers are heard in recorder part.
IC4b Imitates others' motifs	1	Rhythmically imitative of the drum (use of quavers and semi-quavers).
IC5a Deliberately provides scales and metrical patterns for others to imitate	1	Patterns are briefly referred to by the recorder.
IC5b Imitates others' use of scales and metrical patterns	1	Repeated semi-quavers on E are used by recorder. Wide melodic intervals not present in any other part.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Plays loudly.
IC6b Imitates others' expression whilst playing	1	Similar dynamic to recorder.

Table 6.16 Tutored: Interactive Composing (IC) category score explanation for Xylophone

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	1	Durations (quavers, semi-quavers and crotchets) are imitated by both other players.
IC3b Imitation of others' sounds	1	Only in duration.
IC4a Deliberately provides motifs to 'engage' others	1	Difficult to distinguish motifs due to disjoint nature of beats however durations are picked up by other parts.
IC4b Imitates others' motifs	1	No direct imitation of other motifs evident, although there are some rhythmic similarities.
IC5a Deliberately provides scales and metrical patterns for others to imitate	1	8 semi-quavers together is imitated by xylophone, otherwise no imitation of patterns.
IC5b Imitates others' use of scales and metrical patterns	1	Again only with the use of semi-quavers and since this part only plays at the opening of the piece there is no further opportunity for imitation.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Plays quietly.
IC6b Imitates others' expression whilst playing	1	Rain stick is also played quietly.

Table 6.17 Tutored: Interactive Composing (IC) category score explanation for Drum

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	1	Sounds provided are rhythmically imitated at times by other players.
IC3b Imitation of others' sounds	1	Rhythmic imitation occurs e.g. groups of 4 semi-quavers.
IC4a Deliberately provides motifs to 'engage' others	2	Motifs used are not imitated by others except for some durational similarities, and repetitive 'E' pitch as in xylophone part.
IC4b Imitates others' motifs	2	Repetitive pitch and rhythms.
IC5a Deliberately provides scales and metrical patterns for others to imitate	1	Patterns used are rhythmically similar.
IC5b Imitates others' use of scales and metrical patterns	1	Semi-quavers are present in other parts but otherwise uses a pre-learnt piece.
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Awareness of phrasing is present in the performance.
IC6b Imitates others' expression whilst playing	1	Similar dynamic to xylophone.

Table 6.18 Tutored: Interactive Composing (IC) category score explanation for Recorder

SoI Composing Analysis Interactive Composing (IC) Non-Tutored

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	2	All durations produced (apart from the semi-quavers) are imitated at different points by all other players
IC3b Imitation of others' sounds	3	At 3 notable points
IC4a Deliberately provides motifs to 'engage' others	2	Plays both times with force and whilst looking at other players
IC4b Imitates others' motifs	2	He responds to and interacts with others playing (for example in the use of accents in bar 6)
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	Various part of his motif are imitated (see score)
IC5b Imitates others' use of scales and metrical patterns	2	At different points with quavers and crotchets as shown within the analysis
IC6a Deliberately plays expressively through the playing /performing of the composition	1	Loudly most of the time
IC6b Imitates others' expression whilst playing	1	Plays at a similar volume to peers

Table 6.19 Non-Tutored: Interactive Composing (IC) category score explanation for Claves

SoI Category and Criteria	Score Given (Scale 0-5)	Reason for Score
IC3a Deliberately provides sounds for others to imitate	2	All parts of his motif are imitated in part by all other peers
IC3b Imitation of others' sounds	2	Again, there are different points of imitation
IC4a Deliberately provides motifs to 'engage' others	1	With the opening rhythm
IC4b Imitates others' motifs	2	Rhythmic imitation occurs at different points.
IC5a Deliberately provides scales and metrical patterns for others to imitate	2	Patterns are basic, but occur within other parts.
IC5b Imitates others' use of scales and metrical patterns	1	At a basic level but the piece is too brief for much of this to occur.
IC6a Deliberately plays expressively through the playing /performing of the composition	3	Uses different expressive devices.
IC6b Imitates others' expression whilst playing	1	All other players perform loudly and with little awareness of dynamics.

Table 6.20 Non-Tutored: Interactive Composing (IC) category score explanation for Shaker

Response to Research Question 4a for Case Study 6:

Is there an impact, and, if so, what is the nature of the impact, of using experimental or traditional Western classical music on 9–11-year-old children's capacity to compose coherently with others in small groups?

The impact of the stimulus on the tutored groups levels of collaboration is low, and may have been impacted by them using pre-learnt music. Despite having specific and moderately advanced instrumental skills, (Players 2 and 3 are pianists and Player 1 a recorder player) this group composed music that was relatively simple and lacking in structure. Tutored participants demonstrated limitations in terms of developing their ideas shown in the use of musically independent 'micro-solos' – moments of individual playing that were self-imitated, but which, apart from rhythmic elements did not transpire into the ideas of other players.

Non-tutored participants demonstrated a greater level of collaboration during this response, shown in the frequency of their imitation and their attempts to incorporate each other's ideas into their own. This could be in part due to the stimulus.

Response to Research Question 4b for Case Study 6:

Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons on 9–11-year-old children's capacity to compose coherently with others in small groups?

Tutored participants demonstrate a low level of musical communication during this response, evident in their low SoI (Composing) Interactive Composing scores. The use of pre-learnt material has the effect of not only reducing that player's likelihood of creating and developing new ideas, but also may have limited her group members responses. This is evident in the sparse musical relationships within the composition.

The non-tutored group's lack of instrumental skill may have contributed to their limited development of ideas, but their Interactive Composing scores indicate that they worked more collaboratively than the tutored group. In summary, it is fair to speculate that whether or not participants were tutored or non-tutored did have an impact on their levels of collaboration in this example.

5.4 Summary of Applied Musicological Findings

Chapter 5 has compared 12 case studies and answered each research question in relation to the Sounds of Intent (Composing) scoring framework through the musicological analysis of children's creative products in the context of zygonic theoretical principles. Having presented the quantitative applied musicological findings in chapter 4, a summary of the main findings of the qualitative applied musicological analysis will now be presented.

In answer to the research questions, the findings of this analysis reveal that instrumental tuition does impact upon children's compositional products when composing in groups but occurs at different levels within each area of the SoI (Composing) scoring framework. Proactive Composing and Proactive using the Stimulus analysis was less influenced by whether or not participants were tutored or non-tutored as the SoI (Composing) scores are not vastly different between participants. Evaluating the Product and Interactive Composing analysis show a greater difference in the scores between tutored or non-tutored participants. Possible reasons for non-tutored participants consistently scoring higher in these two areas (Evaluating the Product and Interactive Composing) of the scoring system are explored at a greater depth in the next chapter.

With regards to the impact of a Western classical stimulus and experimental musical stimulus as an influence on children's composing, there are multiple examples of both tutored and non-tutored participant groups showing very little difference in scores across all four areas of the SoI (Composing) framework indicating that compositional responses were not affected by overall by contrasting classical and experimental stimuli.

The results of this analysis are counter-intuitive; it was expected that experimental music would inspire greater creativity for participants during the composing process than classical music, but it did not. It was also expected that tutored participants would be more creative due to their learnt instrumental skills than non-tutored participants, but this was not the case. It can therefore be speculated that a child's propensity to compose is multi-faceted and involves more than the use of learnt musical knowledge. These levels of complexity will now be explored in the context of current literature in chapter 6, discussion.

Chapter 6 - Discussion

6.1 Introduction

This research set out to investigate the impact of instrumental tuition and experimental music on the compositions of children aged 9-11 years old, who took part in a composing task undertaken in small groups. Groups were constituted according to whether the children had previously had instrumental tuition or not. They were played recordings of Western classical (Chopin) and experimental (Cage and Abrahamsen) pieces of music to which they generated responses in the form of compositions. Having presented applied musicological analysis in chapters 4 and 5, this chapter aims to contextualise these findings within current research in the field of music education. It summarises the main findings, their significance and their potential impact upon future research and pedagogy. It also considers the limitations of the study and possible next steps.

The unique contributions of this research are its focus on comparing classical and experimental music as drivers for children's composition, combined with the question over how formally learnt musical knowledge may impact upon the composing process. It considers how children approach composing, but also how children's thinking and musical creativity is influenced through their experiences of instrumental learning, or lack of. I have explored these questions using applied musicological analysis, in the form of a new scoring framework, which, due to its focus on the music itself, gives the most accurate account of how musical and social interactions occur together when children compose in groups. Although much research has been conducted investigating collaboration and instrumental teaching and learning respectively, none has combined the two, used this type of analytical approach or considered the use of experimental music within this context.

Furthermore, the findings of my study show that learning an instrument cannot necessarily be linked to musical creativity, and that tutored participants demonstrated increased musical creativity when composing in response to experimental music. It also showed that non-tutored participants had a greater propensity to compose collaboratively than tutored participant and overall scored higher in all aspects of the composing process. These findings offer new perspectives on music pedagogy, both in the context of schools and individual instrumental learning.

6.2 Summarising the main findings from applied musicological analysis

The application of a newly conceived scoring framework – Sounds of Intent (Composing) was used to analyse children's compositions in chapters 4 (quantitatively) and 5 (qualitatively). The two sets of results obtained support each other from a music-psychological viewpoint. The analysis shows that whether participants were tutored or non-tutored made a significant difference to the compositional responses of children as gauged by the Sounds of Intent (Composing) scoring system. The most notable differences were between tutored and non-tutored participants levels of collaboration (SoI (Composing) Interactive Composing scoring category) during group composing, and participants' use of compositional material (measured in SoI (Composing) Evaluating the Product scoring category), with non-tutored participants scoring higher than tutored. Non-tutored participants indicated greater levels of musical imitation between group members and logical development of ideas within their compositions than tutored, who showed a greater tendency to work in an isolated fashion, with musical material lacking relation between parts.

Regarding types of musical stimuli, there was no overall statistical difference between the different types of stimuli (Classical and Experimental) on the SoI (Composing) scoring categories. This finding does not support the hypothesis that experimental music may induce more musically creative responses to composing than classical music. However, analysis did reveal that the variable of stimulus showed a statistically significant effect on the Proactive using the Stimulus and Interactive Composing (IC) categories of the SoI (Composing) scoring system, for tutored participants. This means that tutored children's capacity to compose in groups and their use of stimulus material in response to musical stimuli was affected by the style of the stimuli.

Thus, this suggests that experimental music induces musical creativity during composing more than Western classical music for children who take instrumental lessons (tutored participants). Additionally, the occurrence of a statistical significance relating to Research Question 4 'children's capacity to compose coherently with others' does suggest that styles of collaboration used by children when composing are affected by the style of the music itself and levels of being tutored or non-tutored, when occurring together.

The qualitative analysis explored differences between tutored and non-tutored participants' compositions in the context of the research questions, each of which linked to an area of the Sounds of Intent (SoI, Composing) framework; Proactive Composing (the coherence of individual contributions to compositions), Proactive using the Stimulus (the use of stimulus material by participants), Evaluating the Product (the structure and content of compositions) and Interactive Composing (the capacity to work with others). Musicological analysis of 12 compositional outputs revealed four main observations that linked to the research questions relating to levels of participants' motivation, the transfer of musical skills (participants propensity to transfer learnt instrumental skills onto composing), the impact of using pre-learnt musical material on composing and the effects of collaboration on group composing, including levels of musical imitation, the development of individual ideas in response to others and the structure and content of the music composed.

How these findings may confirm and challenge current thinking in the field will form the basis of the discussion that follows.

There were four observations that were identified from the applied musicological Case Study analysis that responded directly to the research questions which is shown in the table below (Tab. 25):

Research questions **Themes**	***1b)*** *Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing traditional Western classical or experimental musical stimuli* ***on the coherence of 9–11-year-old children's individual contributions*** *to group composing?*	***2b)*** *In 9–11-year-old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons and of experiencing traditional Western classical or experimental musical stimuli* ***on children's use of stimulus material*** *during group composing?*	***3b)*** *Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing traditional Western classical or experimental musical stimuli on the* ***structure and content of 9–11-year-old children's compositions,*** *improvised in small groups?*	***4b)*** *Is there an impact, and, if so, what is the nature of the impact, of having or not having instrumental lessons and of experiencing traditional Western classical or experimental musical stimuli* ***on 9–11-year-old children's capacity to compose coherently with others*** *in small groups?*
Effects of motivation on participants composing strategies	X			X
Transfer of musical skills to the context of group composing	X		X	X
The impact of using pre-learnt material on composing		X	X	X
The effects of collaboration on group composing		X	X	X

Table 24: Case study observations in relation to RQs: X indicates the relevance of each observation to each research question

Each research question is presented in turn, in relation to the relevant literature and in the context of the findings presented here. As the effect of being tutored or non-tutored was significantly greater than whether participants responded to traditional Western classical or experimental stimuli, this discussion focuses mainly upon this aspect of the findings.

<u>*6.3 Research Question 1:*</u>

Is there an impact and if so, what is the impact of having or not having instrumental lessons and of using traditional Western classical or experimental musical stimuli on the coherence of children's individual contributions to compositions, improvised in small groups?

Statistical analysis revealed no significant impact of stimulus (p = .771) on participants SoI (Composing) Proactive Composing scores, (see section 4.5.1) but did show a significant effect of the variable of tutored/non-tutored on Proactive Composing scores for both experimental (p = .001) and classical (p = .001) musical stimuli, with non-tutored participants scoring higher than tutored. Therefore, the response to this research question will focus mainly upon the impact of whether participants were tutored or non-tutored. This involves two observations of the four identified in the table above: 1) The effects of motivation on participants composing strategies and 2) the transfer of musical skills to the context of group composing. The discussion of these observations includes references to the use of musical stimuli, but different stimuli did not emerge as influential upon participant's SoI (Composing) PC scores.

Initially, it seems useful to define what can be understood as coherence in the context of music. Coherence can be generally understood as the quality derived through being logical and consistent. So, in music, as *listeners,* this can be understood as the quality and logic individuals derive through hearing and processing the sounds being heard. Within the Sounds of Intent (Ockelford, 2012) framework of musical development, the Proactive Domain Level 4 defines coherence as the 're-creation of distinctive groups of musical sounds (motifs) and then linking them coherently' (Ockelford, 2012:). For the context of this study, this definition was further developed so that the Sounds of Intent (Composing) framework, could identify aspects of musical coherence within composition as shown below (List 1):

Proactive Composing Criteria

PC3: Imitates own sounds

PC4: Imitates own motifs

PC5: Uses scales and metrical patterns

PC6: Performs expressively

List 1: SoI (Composing) Proactive Composing criteria

Doing so allows the separation of the different musical elements that define a coherent musical event. Thus, the SoI (Composing) model enabled me to measure coherence through the lens of the *composer*, which is in this case, child participants. The aspect of coherence is returned to in section 6.3.2.1 in relation to the children's musical output and their level of musical skill. At this point, however, it is prudent to reference coherence as a musical phenomenon which, as Ockelford (2018) defines it, can be maintained despite the introduction of contrast, for example, through the dynamic relationship between structure and content. Moreover, the children participating in this study showed through their compositional tasks varying degrees of providing 'links between given material, to fill potential gaps and ensure coherence' (Ockelford, 2013:57).

<u>*6.3.1 Response to research question 1 in relation to motivation:*</u>

The effects of motivation on participants composing strategies, and how this impacted upon the coherence of tutored and non-tutored participant's individual contributions to group composing.

Motivation (the willingness to do something) was identified as impacting on participants' coherence during group composing. Lack of motivation was visually evident in video footage where participants played in a disengaged manner (e.g. playing randomly during a performance resulting in musical disconnection) and in the notation of creative products whereby an individual's musical contributions were sparse and randomly placed. Incoherent individual contributions were more frequently observed in the creative products of tutored participants than non-tutored and were commensurate with low levels of musical imitation and a lack of logical structure in the creative products, or the musical part of the individual, that were composed. Examples include Case Study 3 and Case Study 6, both of which are of tutored children, whereby the overall understanding of individual parts by the participants when performing is questionable (evident in video) and there is a lack of coherence within the musical material (see notational analysis). These groups were also unable to keep in time with each other, which is a basic musical skill. Further examples are available in the appendices (see A11), from which I made the following observations from video footage:

On listening it is difficult to distinguish any musical coherence from this performance due to the lack of sonic structure. Within the principles of zygonic theory, whilst *occasional sonic relationships between repeated pitches* ***within*** *individual parts can be identified, relationships* ***between*** *parts are not present at a level that creates a structured musical narrative. The guiro player is disengaged for nearly all this performance. He shows little interest in what he is doing, looks all around him and scrapes the guiro at random points.*

This finding appears to contradict some of the initial findings from the literature. Glover (2000) identified instrumental teaching being a strong individual motivation for composing, albeit one amongst others. The findings from the research presented here appear to suggest that instrumental tuition did not, in and of its own right, enhance motivation for group composing. Reasons for low levels of motivation by participants may have been a lack of willingness to engage in the task as it was deemed too easy, a lack of familiarity with playing music in a group context, a lack of interest in the task of composing itself and conflicting musical identities associated with the group composing context. It is not possible to speculate on aspects of individual participants' levels of interest in composing, their familiarity with group playing and whether or not tutored participants deemed the task too simple, as this would require measuring each of these components individually and in relation to each other. However, with consideration of literature in the area of 'musical identities,' it is possible to draw comparisons and suggest links between levels of motivation and levels of individual coherence during composing.

The social-psychological perception of individual musical identity may shed light on the question of why motivation would impact compositional coherence at a greater level for tutored participants than non-tutored participants. How participants identified with themselves as 'musicians,' which Hargreaves, Miell and MacDonald (2002) juxtaposed as one category of identity (identities in music) with that of music in identities, which denotes the role of music in shaping individual identity more broadly. As musical identities are defined as being 'performative, constantly evolving and negotiated across a range of social contexts' (MacDonald, Hargreaves & Miell, 2017), it is fair to speculate that the range of motivations observed across the iterations of this study indicated evolving conceptualisations of musical self-identity amongst some participants. As initial identities may have been more firmly established for tutored participants than non-tutored, due to their experience of instrumental learning, this may have caused them to experience conflict between, for example, identifying as an 'instrumentalist' to being a 'composer' within a group. This is in line with Lamont (2017) who also highlighted that 'another major developmental shift occurs in identity around the age of 7, where children begin to compare their own achievements and attitudes with those of their peers and use these in their self-definitions, 'which should also have impacted the children's response' (p. 177).

Lamont (2002) found that musical identity for children of late primary age related strongly to whether formal instrumental tuition formed part of their musical learning. She discovered that children in schools who have no individual instrumental music provision are more likely to perceive themselves as musicians, presumably through their involvement in general class musical activities, than children in schools in which individuals are taken out of class lessons to receive specialist tuition (Lamont, 2002). This implies that musical identity formation for non-instrument school learners may be influenced by whether their peers take instrumental lessons. As the school used in this study provided 90 minutes per week of music for all pupils, this presents a possible reason for the motivated approaches to the task by non-tutored participants. Their attitude towards the activity demonstrated confidence that was unperturbed by the fact that they did not learn an instrument like many of their peers. Thus, this exemplifies how music is experienced in schools is fundamentally important in the formation of an individual's musical identity.

Other research shows that the conventional defining feature of a 'musician' focuses on instrumental performance skills—whether one can play a musical instrument (Plummeridge, 1991; Glover, 1993 and 2000). Lamont (2003) also found that children who did not take instrumental lessons did not consider themselves 'musicians' even though they played instruments in class activities (Lamont, 2003). In the context of the findings presented here, this would, therefore, suggest that the musical identities in the spirit of the definition advanced by Hargreaves, Miell and MacDonald (2002) were not substantially different between tutored and not-tutored children. However, research focused on motivation itself identifies the key factor this may play in an individual's continued involvement with music, including playing an instrument (Austin, Renwick, and McPherson, 2006). In consideration of all these factors it can be argued that motivation although specifically an individually controlled response, may have occurred differently for tutored and non-tutored participants.

Moreover, Glover (2000) found that pupils for whom composing is compelling, despite their lack of experience of performing skills are often likely to be the most imaginative and skilful composers of all since their drive to compose appears to come from their interest in working creatively with musical sound and are not necessarily those children who already learn instruments. Therefore, the motivation to compose can be strongly linked to an individual's personality, and not to whether or not they learn an instrument (Corr, Young, McNaughton, 2013).

Additionally, fluctuations in motivation levels shown by some tutored and non-tutored participants can be linked to evolving perceptions of the musical self within the context of group composing, which could explain the different levels of coherence shown in different task responses by the same participants.

As music is a fundamental channel of communication, it can act as a medium through which people can construct new identities and shift existing ones in the same way as spoken language (MacDonald, Hargreaves & Miell, 2016). Considering this, it can be plausibly argued that conflicts over musical identities were influential upon levels of motivation, which affected individual musical coherence for some tutored participants, when composing in a group context. It is also recognisable that the nature of a child's psychological and individual response to a composing task will directly affect the creative product that emerges (Glover, 2000).

<u>6.3.2 Response to research Question 1 in relation to the transfer of musical skills:</u>

The transfer of musical skills to the context of group composing and how this affected the coherence of tutored participants' musical responses to group composing. The transfer of musical skills in the context of this study refers to the participants' tendency to apply musical knowledge they have learnt elsewhere, in the case of tutored children, onto a different context. In the case of knowledge brought from individual instrumental lessons, for example, this means the transfer to group composing for tutored participants, and from other sources (such as music experienced in the home, school clubs, choirs) for non-tutored participants. This section focuses on two areas of interest in relation to the transference of learnt knowledge, that of different levels of participants' instrumental skill and instrumental teaching styles, and how these may have impacted upon compositional coherence.

6.3.2.1 Different levels of instrumental skill

During the research, the propensity at which tutored participants transferred learnt instrumental knowledge into the context of composing was an influential factor on the coherence of their individual contributions to a composition. This was also different for participants with high and low levels of skill on an instrument; the following case study examples discuss this.

In case study 4, a tutored group, three participants demonstrated increased levels of coherence when composing using their own instruments (piano, viola, xylophone), than when they used solely percussion instruments. However, for the percussion player, using his own instrument did not increase levels of individual coherence and he scored extremely low in the SoI (Composing) Proactive Composing category compared to his group peers. Three of the four participants in this group, therefore, demonstrated transference of their learnt instrumental knowledge onto the context of group composition, and used this to create coherent individual contributions to the group compositions.

Other tutored participants who used their own instruments (e.g. case study 3, tutored trombone, case study 2, tutored recorder and piano, case study 6, tutored recorder) scored higher in activities when they were using percussion rather than their own instruments. In other words, when using their own instruments, children did not demonstrate a tendency to transfer their learnt instrumental skills onto a composing task. Their Proactive Composing scores were low, due to a lack of coherence in their individual contributions. As their scores were higher when not using their instrument, it can be speculated that use of the instrument with a low level of skill may impact negatively on musical coherence. This is in line with findings in the literature. With regards to musical coherence and instrumental playing level, Seddon & O'Neill (2006) compared the impact of FIMT (formal instrumental music tuition) on computerised compositions of 10 year olds grouped as those with 2 years of FIMT and those with none. Upon analysis, teachers found no difference between the musical qualities of the compositions of both groups. The results were interpreted as indicating that two years of instrumental learning is not enough time to affect compositional outcomes (Seddon & O'Neill, 2006). With regard to composing, Miell and MacDonald (2000) found that the length of time children had been having instrumental music lessons was significantly positively correlated with how good they felt they were at composing, even though compositions of children inexperienced and experienced with instrumental learning did not display any difference (Miell & MacDonald, 2000).

This may explain why case study 4 tutored has emerged as an anomaly, because the participants of this group had all experienced several years of instrumental learning. Case studies 2, 3 and 6 indicate that limited instrumental technique does not necessarily assist in compositional coherence any more than no instrumental technique.

From this, and more broadly from the results of the entire analysis, it can be deduced that the term 'tutored' as referring to playing an instrument covers a wide spectrum of skill levels. In addition to this the use of an instrument that a child is learning in a one-to-one context for a group composing task is not necessarily going to assist in that individual contributing musically coherent material to the composition. The latter in particular refers to using an instrument successfully in this study relying on both the skill levels of the player and their propensity to transfer these learnt skills onto the context of composing. As many tutored participants were unlikely to exhibit the transference of learnt skills onto different instruments, such as percussion, and subsequently into the context of composing, the majority of tutored participants did not compose at a level equating to their instrumental skill level (as measured by passed music exams).

Thus it can potentially be concluded that there are other factors at work in the transference of instrumental skills to group composing that are unique to the individual, perhaps in the form of aural awareness of others' musical expressions, in individual cognition to process musical events and modify responses in a group context, in relation to an individuals' personal musical experiences and in an individuals' familiarity with group music activities. Aural awareness and the processing of musical events in order to modify coherent responses can be linked to literature pertaining to instrumental teaching approaches and the lack of creativity within this area of music learning, particularly with regard to ear playing and improvisation, which are known to promote creativity (Koutsoupidou, 2008, Hargreaves, 2012 & MacDonald, Byrne & Carlton, 2006). The following section considers how instrumental teaching may impact upon individual contributions to group composing.

6.3.2.2 The impact of teaching styles on the transfer of musical skills and the coherence of individual contributions to group composing.

Non-tutored participants displayed a greater level of coherence overall during the study (as demonstrated within the SoI (Composing) Proactive Composing scores), although their ideas were often technically simpler (see case studies 2 and 4 for comparable examples). In contrast to tutored participants, this could indicate that the lack of instrumental learning for non-tutored participants resulted in them taking a more creative and autonomous approach to the task of group composing, albeit that they were limited by their lack of technical knowledge.

The following observation is an example of differences occurring between tutored and non-tutored students in relation to musical coherence from case study 5:

'The non-tutored performance indicates that participants are able to conceptualise rhythms and expressive devices and structure them in a musically coherent way without understanding how these transpire from formal 'musical' knowledge. They are creating music through experimenting with ideas as opposed to applying previously learnt concepts. There is imitation between parts, but it is combined with the use of derivation as opposed to direct copying. Comparably, the tutored product lacks the development of ideas as participants imitate each other almost exactly and

do not explore timbre and texture at the same level as non-tutored participants within this example'.

The lack of coherence of some tutored participants' musical contributions could indicate influences from the teaching styles that they have experienced in one-to-one lessons. Baker and Green (2013) found in their Ear Playing Project (where one group of students were exposed to ear playing and another to notation learning) that playing by ear developed students' autonomy, which previous research has found to be linked to musical creativity (Fautley, 2016; McPhail, 2013). An argument for the benefit of student autonomy in instrumental learning is promoted by McPhail (2013), whose research of one-to-one instrumental learning reported that instrumental tuition should enhance students' ownership of their musical creativity (McPhail, 2013).

Accordingly, if tutored participants were used to learning music in instrumental lessons mostly from printed notation, their opportunities to develop autonomy and explore musical creativity during group composing may have been reduced in comparison to non-tutored participants. Given the research available, it is probable that there is a lack of aurally based activities during instrumental learning for tutored participants, which can be considered as having a possible impact on their individual coherence during group composing, as they may be more familiar with an 'instructional' approach (whereby the teacher states the learning objective and the process to achieve this) to learning music, as opposed to developing musical 'skills' in the wider sense through improvising and playing by ear. Thus they are not prepared musically to 'create'. Rather they may associate music with a certain set of social constructs. This is supported through research that has shown instrumental teachers' ability to include creative activities, such as improvising, in 1:1 lessons is problematic (Gaunt, 2008; McPhail, 2013; Meissner, 2016).

In summary, whether participants were tutored or non-tutored had an impact on the coherence of their musical contributions. This was indicated by the transference of learnt musical skills by tutored participants whose individual contributions to group composing showed that they struggled to work autonomously and to explore a wider concept of musical ideas at the same depth as non-tutored participants. Tutored participants' propensity to transfer learnt skills was also affected by the level at which they could play their own instrument and possibly by how long they had been learning.

6.4 Research Question 2:

In 9 to 11 years old children's compositions, is there an impact and, if so, what is the nature of the impact, of having or not having instrumental lessons and of using traditional Western classical or experimental musical stimuli on children's use of stimulus material during group composing?

The use of stimulus material was measured using the SoI (Composing) Proactive using the Stimulus criteria, as shown below (List 2):

Proactive using the Stimulus Criteria

PS3: Imitates sounds from stimulus

PS4: Imitates motifs from stimulus

PS5: Uses scales and metrical patterns and structure from stimulus

PS6: Imitates expression from the performance of stimulus

List 2: SoI (Composing) Proactive using the Stimulus criteria

Research Question 2 asks how the impact of instrumental tuition may affect the use of musical stimuli during collaborative composing, and this will be discussed, after revisiting the statistical findings for this particular area of the research.

Applied musicological analysis in chapter 4 indicated a significant effect of the variable TNT on Proactive using the Stimulus scores for both experimental (p = .034) and classical (p = .002) musical stimuli (cf. Chapter 4, section 4.5.2). Non-tutored participants scored significantly higher than tutored participants within the SoI (Composing) PS scoring category for both types of musical stimuli (cf. Chapter 4, section 4.6.2). Secondly, the effect of different types of musical stimuli on the use of stimulus material can be described as approaching statistical significance (see Proactive using the Stimulus SoI (Composing) scores, p = .065), suggesting an impact of the variable stimulus upon children's use of stimulus material when composing in groups. These results will now be explored with regard to the case study analysis. To begin with, the overall differences that occurred between tutored and non-tutored participants' use of classical and experimental stimulus material will be discussed, together with some possible explanations for these, followed by further discussion considering the responses to different types of stimuli that occurred.

6.4.1 The differences between tutored and non-tutored participants use of Western classical and experimental stimulus material.

Two main differences were observed between the use of musical stimuli by tutored and non-tutored participants, the use of expressive devices and the organisation of sound. Expressive devices here are understood as volume changes (dynamics), changes in speed (tempo), manipulation of sound (timbre – e.g. hitting a drum with a stick then using the hand), use of silence and a build-up or decrease in texture (through the addition or reduction of sounds/instruments used) as re-created from the stimulus. The organisation of sound refers to how the sounds chosen by participants were subsequently used in reference to the stimulus during composing.

6.4.1.1 The use of expressive devices

The largest difference in Proactive using the Stimulus scores of both classical and experimental stimulus material between tutored and non-tutored participants was the greater use of expressive devices by non-tutored participants (SoI (Composing) Proactive using the Stimulus scoring category level 6). In every case study example, non-tutored participants scored higher than tutored participants for the use of effects such as dynamics (changes in loud and soft volume), changes in speed (tempo), and the use of accents, thus demonstrating a greater tendency to explore this aspect of the composing process. This could relate to the way in which participants listened to the stimuli, but before embarking on a discussion regarding listening, the second observation of the organisation of sound is presented. Following this, both areas of interest are discussed further, in relation to the literature on the cognitive processes of listening.

6.4.1.2 The organisation of sound

The second observation for Research Question 2 concerns the different ways in which the stimuli material was manipulated and used in compositions by tutored and non-tutored participants.

In case study 1, the non-tutored group was observed as using the stimulus material at a more complex level than the tutored group, due to their emulating so many aspects of Chopin, but then re-organising them to create an original piece of music. For example, the non-tutored xylophone player in case study 1 imitated the wide intervals and sustained pitches of Chopin, but the melody itself does not resemble Chopin's melody as it uses different pitches and is in 7/4 time. Similarly, in case study 5, the non-tutored group re-created the sound of Cage through moments of silence and repeated rhythmic motifs, which recur in slightly different formations as in Cage, whereas the tutored group have used predictable repeats of rhythms in direct imitation of each other, which is not stylistically emulative of Cage. Thus, the non-tutored composition in case study 5 does not directly resemble Cage's prelude, but the organisation of the sound does; the tutored group's composition bears virtually no resemblance to Cage in either the organisation or expression of the sounds used.

In case studies 2 (classical), 3 (classical) and 6 (experimental) tutored, the tutored participants' individual parts occur as distinct solos, bearing little resemblance to the stimulus or to each other. As a sense of derivation through imitation is a necessary feature of all structures that we perceive as musical (Ockelford, 2018), this explains why these particular examples achieved low SoI (Composing) scores for the Proactive using the Stimulus category. These tutored responses can be described as musically 'dissociated' from the stimulus and at times from each other, but what would cause this response is difficult to discern. It is possible that this dissociation may be related to participants' aural perception of the stimulus and that this may have occurred differently for tutored and non-tutored participants. Instrumental learning involves aural training, but how this forms the content of lessons by instrumental teachers will vary hugely, in line with findings by Fautley (2010) in terms of the perceived value attached in instrumental tuition to progressive, technical mastery. This point of interest will be investigated in the subsequent section.

6.4.1.3 Different ways of listening to musical stimuli

The initial focus of this section is to understand why the process of listening by participants may have affected the use of expressive devices in creative products, in relation to zygonic theory, followed by its possible effects on how stimulus material was organised by tutored and non-tutored participants respectively.

The expression in all three musical stimuli used (classical Chopin, experimental Cage and Abrahamsen) is diverse and at times extreme (e.g. moment of silence to moments of sudden forte in the experimental stimuli, dramatic speed changes and pauses in Chopin). The sound 'colour' created through such contrasts in volume and tempo, for example, allows music to take on 'character' and provide listeners with a means to associate with emotion, which gives us the 'experience' of engaging with what we are hearing when we listen to a piece. Unlike many performers who use a printed score to re-create a piece of music, as listeners we are engaging with no visual reference point. Historically, research on how listeners make sense of music through listening was proposed through Gordon's (1975) theory of audiation, denoting 'the ability to give meaning to music when it is not physically present' (Gordon, 1975). Moreover, teaching methodologies such as Kodaly's language of solfege (where pitches are attributed a relational name that can be moved across keys) are still popular in order to encourage students to 'think in sound.'

More recently, Ockelford (2018) sought to explain listening processes in terms of zygonic theory, that when listening, we sub-consciously place different areas of attention to each area of what we are hearing, thus making connections between sonic events. This pattern of connections, however, differs between listeners who will understand the relationships that potentially exist between musical events at varying levels, according to their level of individual musical development and their degree of familiarity with a piece and its style (Ockelford, 2018, p.240). Thus, how participants in this study conceptualised each stimulus they heard, was arguably affected by their familiarity with classical and experimental music, and their individual level of musical development, but perhaps also their propensity to engage with aural information. As neurotypical 9-10 year old's they would likely be at Sounds of Intent (Ockelford, 2013) levels 4 – '*recognising and responding to distinctive groups of musical sounds and the relationships between them* - and 5 – *attends to whole pieces: recognises prominent structural features, such as choruses, responds to general characteristics, such as tempo, and develops preferences'* - on the Reactive domain of the Sounds of Intent framework of musical development, and therefore be able to make some sub-conscious and conscious connections between the sounds they heard. They were likely to have been more familiar with the Chopin stimulus than Cage or Abrahamsen, because classical music will have likely formed some of the content of instrumental lessons and will have been experienced in other areas of participants' everyday lives.

When listening to a piece of unfamiliar music for the first time, it can be presumed that only a small part of the underlying structure is detected through the occurrences of zygonic relationships, enough for the music to make basic sense, but not enough for its organisational subtleties to be detected (Ockelford, 2018), because the brain can only process a certain amount of new information at a time. Therefore, it is possible that the aural connections made by participants when listening to Chopin, were different from those they made to Cage and Abrahamsen, due to different levels of familiarity with the musical style. However, assumed differences in understanding of classical and experimental music did not necessarily affect their propensity to compose with the stimulus material as musicological analysis did not reveal that participants found it 'easier' to compose coherently to Chopin than to Cage or Abrahamsen.

Instead, instrumental tuition may have an impact on how a listener will sub-consciously prioritise the musical connections they are making when listening, (that they will hear certain aspects of the music more than others) with a consideration to how the ear has been trained to respond to music during instrumental learning. This leads to the next point of interest with regard to the greater use of expressive devices by non-tutored participants; that of instrumental teaching approaches.

The reliance on printed notation by instrumental teachers is known to be a major feature of instrumental lessons (Byrne & Carlton, 2006; Koutsoupidou, 2008), rather than the use of playing by ear and improvising, which are considered to promote musical creativity (Cox, 2001). A lack of ear playing and focus on printed music in instrumental teaching has also been linked to reducing the opportunity for children to develop mental 'schemas' of a score (Rostvall & West, 2003).

Given that dynamics and expression are taught in instrumental lessons via observing the instructions on the printed music, tutored participants may have been less likely to observe these aspects purely through listening, as their association with learning music is in the context of following a visual cue. A focus on learning music through a 'visual' approach in instrumental lessons may affect the likelihood of a learner using a 'listening' approach to understand sound. Therefore, it is possible that instrumental learning had an impact on how tutored participants listened to the stimuli, particularly in terms of processing dynamics and expression. This could explain why they did not make nearly as much use of these musical characteristics as non-tutored participants during composing.

Priest (1988, 1989) also argued that the prevalence of traditional instrumental teaching methods has meant that playing by ear has been undervalued and that musical reproductive and creative capacities may, indeed, lie at the heart of all instrumental musicianship (Priest, 1988, 1989). In line with Priest (1988, 1989), this particular finding, as to how tutored and non-tutored participants used stimulus material differently to compose, implies that 'listening' skills are an essential tool for musical creativity and composition, and that the nature of how some children listen may potentially be affected adversely by formal instrumental training methods.

Furthermore, it cannot be ignored that within case study 4, the tutored group manipulated aspects of Abrahamsen's Schnee and used them to create a highly complex original piece, so the difference in tutored and non-tutored responses to using stimulus material is not absolute or generalisable. However, this same tutored group did not achieve the same degree of compositional sophistication in response to the classical stimulus. This leads to the next of focus of this discussion that of a possible relationship between how different musical stimuli impacted upon the way in which stimuli materials were used during group composing by tutored and non-tutored participant groups.

6.4.2 Exploring the relationships between type of stimulus material, use of stimulus material and whether or non-participants were tutored or non-tutored

The different use of stimulus material by tutored and non-tutored participants was also found to vary within their responses to classical and experimental stimuli. These differences were subtle and are only discussed here within the context of the 12 case studies; further exploration across all the video data may provide additional examples of differences. Statistical tests revealed an impact of stimulus on participant's compositional products within the area of SoI (Composing) Proactive using the Stimulus that was approaching statistical significance (p = .054). Further investigation of the data revealed a significant impact of types of musical stimuli upon tutored participants Proactive using the Stimulus (p = .004). As non-tutored participants' results were non-significant, this indicates that tutored participants use of stimulus material was more affected by types of musical stimuli than non-tutored within this (PS) SoI (Composing) scoring category, suggesting an interaction between types of stimulus, being tutored or non-tutored and use of stimulus material. Scoring categories were then separated by stimulus to reveal that tutored participant scores in all (PC, PS, EP, IC) SoI (Composing) scoring areas increased during their responses to experimental stimuli (see Figure 20, Chapter 4, p.172), whereas non-tutored participant scores decreased. Parametric tests conducted also found a significant interaction effect between levels of being tutored or non-tutored, use of stimulus material and types of stimulus, (see appendix Part 2) and therefore I believe this area of the research warrants discussion.

6.4.2.1 Tutored and non-tutored responses to the Western classical stimulus

The main differences observed within the case studies regarding the use of the classical stimulus material by tutored and non-tutored participants were that tutored participants produced individual solos that lacked musical relation to each other (case study 1, 2 and 3 tutored classical). Moreover, tutored groups made use of pre-learnt material (case study 2 tutored) whilst non-tutored groups were more concerned with re-creating the expression (case studies 1 and 3 non-tutored classical) and consequently produced ideas that displayed a greater level of musical connectedness, through the presence of primary, secondary and at times tertiary zygonic relationships between parts (case studies 1 and 2 non-tutored).

Examples of both tutored and non-tutored participants re-creating a homophonic texture (melody and accompaniment) similar to Chopin's right-hand melody and left hand arpeggio accompaniment are found in case study 1, tutored and case study 2, non-tutored. There are other examples of homophony in response to Chopin within the appendices, indicating that participants were conscious of the melody / accompaniment texture (See Appendix Part 3 Case Study A12).

6.4.2.2 Tutored and non-tutored responses to experimental stimuli

When given the experimental stimuli, non-tutored groups were more likely to respond using stimuli references such as silence, polyrhythm, contrasting timbres and expressive devices (case studies 4, 5 and 6 non-tutored experimental) whereas tutored participants demonstrated a preference for direct mimicking (case study 5 tutored experimental), inserted sections of pre-learnt material (case study 6 tutored experimental) and rarely used expressive devices (case studies 5 and 6 tutored experimental).

The responses are summarised in the table below (Tab. 25) showing the different use of stimuli material between tutored and non-tutored participants to classical and experimental musical stimuli.

Classical Stimulus		Experimental Stimuli	
Tutored	Non-Tutored	Tutored	Non-Tutored
Homophonic texture	Homophonic texture	Use of direct rhythmic mimicking.	Use of sound manipulation from the stimuli such as silence.
Ideas are musically unrelated and heard as solo lines as lack of presence of zygonic relationships.	Ideas are musically connected through presence of zygonic relationships	Ideas are musically unrelated and heard as solo lines as lack of presence of zygonic relationships (apart from case study 4, tutored)	Ideas are musically connected through presence of zygonic relationships
Use of pre-learnt material	Use of expressive devices	Use of pre-learnt material	Use of expressive devices

Table 25: Responses by tutored and non-tutored participants to Classical and Experimental musical stimuli

Possible reasons for these differences include a link to the literature on musical identity (MacDonald, Hargreaves & Miell, 2017) and musical imagination (Hargreaves, 2011) in that children's responses to any musical stimulus are created through prior experiences and individual imagination. There could also be an argument pertaining to Self (1970), Dennis (1975), Shafer (1970) and Paynter's (1970) work from the 1970s whereby children were encouraged to 'explore' sound using the techniques of experimental music. This approach to classroom composing in the 1960s and 70s, as discussed more fully in the literature review in chapter 2, was an attempt to open up the opportunities for musical creativity through providing an unrestricted pathway to composing that disregarded formal notation and instrumental technique. Perhaps, within this study, due to a lack of formal instrumental learning, non-tutored participants demonstrated a greater propensity to work with aspects of 'sound' (that is, for example, the use of dynamic and timbral effects as opposed to just concentrating on pitch and rhythm) than tutored participants when responding to the experimental stimuli. Apart from case study 4, case studies 5 and 6 tutored did not demonstrate any structural or coherent use of stimulus material whilst all three non-tutored experimental case studies did (cf. the musicological analysis in chapter 5).

With regard to the classical stimulus, non-tutored participants' greater propensity to work with different aspects of ‘sound’ than tutored ones’ could also explain why non-tutored participants used the classical stimulus material more as a ‘tool’ to create something new, but musically related (case studies 1, 2, 4 and 5), rather than to create individual solo lines as in the tutored examples case studies 2, 3 and 6.

In summary, whether or not participants were tutored or non-tutored did impact on the use of contrasting musical stimuli, as described, but that the causes of this are more complex than simply whether or not participants re-created aspects of what they listened to. The differences lie within the way participants understood, manipulated and then expressed what they heard into something new, and then related their creations musically to the ideas expressed by other members of their group which could be said to contradict, in this very specific aspect of the respective groups’ responses to experimental stimuli, some findings in the literature (Miell & MacDonald, 2000).

6.5 Research question 3:

Is there an impact, and, if so, what is the nature of the impact of having or not having instrumental lessons and of experiencing traditional Western classical or experimental musical stimuli on the structure and content of 9-11 year old children’s compositions, composed in groups?

The structure and content of compositions were measured using the SoI (Composing) Evaluating the Product scoring criteria, which are shown below (List 3):

Evaluating the Product Criteria

EP3a: Repetition of sound as a structural feature

EP3b: Manipulates qualities of sounds to create particular stated effects.

EP4a: Repetition of motifs as a structural feature of the piece

EP4b: Uses motifs to create particular effects

EP5a: Uses scales, metrical patterns and form to create a coherent structure

EP5b: Uses scales, metrical patterns and form to create meaningful narratives

EP6a: Deliberately uses expressive effects to articulate the structure

EP6b: Deliberately uses conventional expressive devices to convey particular effects

List 3: SoI (Composing) Evaluating the Product criteria

There was a significant effect of the variable TNT on Evaluating the Product SoI (Composing) scores for classical (p < 001) and experimental (p = .011) musical stimuli (Cf: Chapter 4 section 4.5.3). Non-tutored participants scored higher than tutored participants for both stimuli. There was no significant effect of the variable stimulus on Evaluating the Product scores (p = .576). Given this, the following section will focus on the differences between the compositions of non-tutored and tutored participants.

The differences between the tutored and non-tutored participants' use of structure and content in their compositions were manifold. Observations included that children with no experience of instrumental learning (non-tutored) had the capacity to compose music of an equal level of complexity as those who did (tutored), that non-tutored participants used more self and between-group imitation of musical ideas than tutored participants and that tutored participants' use of pre-learnt musical material impacted upon the compositional content. These observations will now be discussed separately.

6.5.1 Differences in compositional complexity between tutored and non-tutored participants

With regard to 'complexity', references can be made to examples of non-tutored participants who displayed manipulation of musical material despite having had no lessons (case studies 1 and 2 non-tutored). Both of these case studies show non-tutored participants using pitched percussion (xylophone and agogo bells), and demonstrating equal levels of skills to some tutored participants in terms of the musical content that they devised, such as the use of complex rhythms, polyrhythms, triplets and syncopation, melodic phrasing and motivic development, as scored within the Evaluating the Product area of the SoI (Composing) framework. The children would in all likelihood have not been able to explain in musical terminology, but they were able to organise their musical outputs into coherent compositional structures.

This observation pertains to the literature on musical development and how children's ability to compose occurs long before they can perform, in the form of 'pot-pourri' songs (Moog, 1976; Hargreaves, 1986) and confirmed by the Sounds of Intent framework, level 4 (Ockelford, 2012), that from the age of 2.5 years, children mix together parts of songs they have heard into their own improvisations. This pre-curs more structured musical forms, which occur at Sounds of Intent level 5 (Ockelford, 2013), and which are explored elsewhere in the field in the work on psychological understanding and musical learning pathways of children by Serafine (1988), Swanwick and Tilman (1986), and Gordon (1975), which were presented during the literature review in chapter 2. With this in mind, it is evident that in this study, musicological analysis has revealed that the potential of some non-tutored children to compose may exist at a more advanced level than those receiving formal instrumental tuition. This finding builds on existing literature (Moog, 1976; Hargreaves, 1986, Kratus, 1989; Glover, 2000) that a child's capacity to compose is unrelated to playing an instrument and the prominent feature to emerge from this is that musical creativity can therefore be considered as an innate human trait and cannot necessarily or causally be aligned with a level of instrumental learning.

Through measuring the content of children's compositions with the SoI (Composing) Evaluating the Product criteria, this study confirms the work of Kratus (1989) who found that children understood the requirement for 'repetition' of musical ideas in order that they may be heard as a 'piece' of music, and supports the theoretical value of zygonic relationships that creating musical connectedness is required for coherence. This was confirmed within the study in examples where more logically organised compositions contained greater levels of self and between group imitation (i.e. repetition).

With regard to the impact of music, Kratus (1998) also stated that teachers should not wait for children to develop musical skills before encouraging them to compose and that they brought their own skills to a compositional task, which was also identified within this study as to the variance in creative responses that occurred.

6.5.2 The use of imitation within compositional structures

A second observation within the Evaluating the Product category of the SoI (Composing) scoring framework was that the responses of non-tutored participants used more imitation and repetition of rhythm and pitch phrases within their compositions than tutored participants. Consequently, they achieved higher scores than tutored participants within the Evaluating the Product SoI (Composing) criteria. As a result, the majority of non-tutored participants' compositions demonstrated a greater level of structural coherence and understanding shown in the progression and logical use of musical ideas, even if their ideas were in several examples considerably simpler in technical terms, than those of tutored participants (case study 2 and 4 non-tutored). This was considered to be for two reasons, firstly that non-tutored participants combined their ideas more collaboratively (case study 1,2, 4 and 5) and demonstrated the use of zygonic relationships at secondary and tertiary levels, as opposed to just primary, and secondly that the use of pre-learnt musical material impacted upon the structural development of tutored participants' examples.

6.5.3 The use of pre-learnt material by tutored participants

The use of pre-learnt material was only found within the creative products of the tutored group and was present in three selected case studies: case study 2 classical, case study 3 classical and case study 6 experimental. In all cases, the use of pre-learnt material occurred with low levels of musical imitation, resulting in low scores in the SoI (Composing) scoring category of Evaluating the Product. Aside from the scores, the use of pre-learnt musical material was observed to have a variety of impacts on the compositions, as is demonstrated in the following section.

In case study 3, tutored, the trombone player uses sliding 5th melodic intervals, which mimics the aural warm-up for the school choir and which they repeat on different vowel sounds. In this example, the trombone part overwhelms the other players and musical communications are fragmented, possibly because neither of the other participants can imitate a 'slide' on percussion.

In several other examples, tutored participants use rhythmic patterns clapped out by teachers on a frequent basis to gain silence in class including *'clap, clap, clap it back.' (notated this is:* ♩♩ ♫ ♩). There are no examples of non-tutored participants using pre-learnt melodies, and some (but fewer) examples of non-tutored participants using rhythm patterns known from class. It is unclear why tutored participants used these patterns more, but it could be that they were more likely to use a musical phrase / tune they already knew than improvise something new, in comparison with non-tutored participants, or because they were exposed to these patterns more than non-tutored participants as they took part in more music activities at school. Using these patterns appeared to limit the progression of the group composing process in that tutored participants became 'locked' into mimicking or repeating a similar pattern, unable to progress their ideas further (case study 5, tutored).

This exemplifies that the proclivity of an individual to 'create' music collaboratively is different to that they may possess for learning and reproducing a written tune. Thus, in response to research question 3, whether or not participants had received instrumental tuition did impact upon the structure and content of their creative products, as tutored participants found it more difficult to develop and progress their ideas than non-tutored and the incorporation of pre-learnt material inhibited the structural formation of tutored creative products.

6.6 Research question 4

'Is there an impact, and, if, what is the nature of the impact of having or not having instrumental lessons and of using traditional Western classical or experimental musical stimuli on 9-11 year old children's capacity to compose coherently with others in small groups?'

6.6.1 Introduction

Levels of musical collaboration were measured within the Interactive Creativity section of the Sounds of Intent (Composing) model as follows (List 4):

Interactive Composing Criteria

IC3a: Deliberately provides sounds for others to imitate

IC3b: Imitation of others' sounds

IC4a: Deliberately provides motifs to 'engage' others

IC4b: Imitates others' motifs

IC5a: Deliberately provides scales and metrical patterns for others to imitate

IC5b: Imitates others' use of scales and metrical patterns

IC6a: Deliberately plays expressively through the playing /performing of the composition

IC6b: Imitates others' expression whilst playing

List 4: SoI (Composing) Interactive Composing criteria

Quantitative applied musicological analysis revealed a significant main effect of the variable TNT on SoI (Composing) Interactive Composing scores for both classical (p < .001) and experimental (p = .002) musical stimuli (Cf: Chapter 4, section 4.5.4). There was also a significant effect of the variable stimulus (p = .004) on Interactive Composing scores across all participants (Cf: Chapter 4, section 4.5.4). Across the study, the largest difference in scores was found to be in this scoring category, with non-tutored participants scoring 81% higher than tutored (Cf: Chapter 4, section 4.6, table 21). There were a variety of factors that emerged from the qualitative musicological analysis which are believed to contribute to this difference, including the use of own instruments and low levels of musical imitation by tutored participants and different approaches to the task by tutored and non-tutored participants. As there was an effect from both variables (TNT and stimulus) on Interactive Composing SoI (Composing) scores, each of these will be dealt with separately in the sections that follow.

6.6.2 The use of instruments during collaborative composing

The first consideration (as previously discussed in response to research question 1) is the impact of the use of own instruments by tutored participants at a low level of skill, which in several cases presented a barrier to musical communication within a group context. Already identified as having an impact on levels of individual coherence, the use of tutored participants' own instruments at a low level of skill was also observed as impacting upon participants' levels of collaboration, in that other group members were less likely to conceive a response (case studies 2, 3 and 6 tutored), than when participants were all using instruments that they had not learned. The possible effects of using an instrument that a child learns during a group composing activity is an un-researched area of the field, but may warrant further investigation in terms of drawing together the identified gap between instrumental learning and classroom music teaching (see Hallam and Gaunt, 2008) and informing music education practices.

6.6.3 Levels of imitation and approaches to composing by tutored and non-tutored participants

As evidenced in the SoI (Composing) Interactive Composing scores, tutored participants tended to work in a more isolated fashion (resulting in low frequencies of imitation of others) whereas non-tutored participants demonstrated higher frequencies of group imitation. This could be related to the tutored participants' experience of learning an instrument in a one-to-one environment and the psychological association of music as a solo activity that this experience may have induced, as discussed previously within the scope of literature on musical identity, (Hargreaves, MacDonald & Miell, 2010). Lastly, it appears that non-tutored participants had to draw on intuitive skills when composing, as they could not bring formal skills to the task, whereas tutored participants were more likely to try and apply their formal knowledge, with varying levels of success. Thus, individual participants' self-perception of their own capability at composing may have impacted upon a perceived 'need' for the other members of their group, resulting in greater collaboration.

6.6.4 Exploring the relationships between type of stimulus material, whether or not participants were tutored or non-tutored and levels of collaboration.

In the quantitative analysis, there was a significant effect of different types of stimulus on SoI (Composing) Interactive Composing scores (see chapter 4, SoI (Composing) Interactive Composing scores). This indicates that participants' levels of collaboration during composing tasks were different when experiencing contrasting musical stimuli. Through separating the Interactive Composing scores for each case study, it is possible to disaggregate and thus compare the different levels of collaboration for each musical stimulus, for tutored and non-tutored participants. Following this the data revealed a significant impact of stimulus upon tutored SoI (Composing) Interactive Composing scores, but not non-tutored, indicating that tutored participants levels of collaboration were more affected by musical stimuli that non-tutored. Upon separation of the SoI (Composing) scoring categories by stimuli, (see chapter 4, Figure 20) the data showed that when responding to experimental stimuli tutored participant's scores increased, whereas non-tutored participant's scores decreased. This indicates an interaction between types of musical stimuli, the capacity to work with others and instrumental learning, leading me to tentatively suggest that, when returning to the original hypothesis that experimental music may induce a more creative response than Western classical, there may be some correlation. What or how this is manifested within individuals when composing cannot be clarified from these results, however further research could offer a more concrete standpoint from which to reiterate this area of interest.

In relation to the literature, this finding sheds light on the original argument presented in chapter 2 and particularly in support of Spencer's (2016) observations that if teachers were prepared to step outside their own 'listening comfort zone' (Spencer, 2016) and expose children to the musical ideas of 20th century composers, then children may be able to explore music in a wider sense. Additionally, the fact that overall findings presents children with no prior instrumental learning as more inclined to collaborate during group composing in comparison with those who do learn instruments, questions how the act of composing is perceived by participants. The work of Self (1970), Dennis (1970), Shafer (1975) and Paynter (1975), can be considered here, in that these music educators viewed experimental music techniques as more inclusive to all children, as opposed to the limitations that may be imposed by traditional classical forms and structures. These limitations can be considered not just in classical music itself, but in the perceptions that may be formed by listeners and players when experiencing classical music.

In summary, in this study, the impact of whether or not participants were tutored or non-tutored affected how they composed in a group when responding to classical and experimental musical stimuli, and that in this study, experimental music encouraged greater levels of collaboration from tutored participants during group composing than classical music did.

6.6.5 Collaborative composing within current literature

Collaborative composing is an area of research that has attracted a great deal of attention in the last two decades (cf. Hargreaves & Joiner, 2000; Faulkner, 2003; Green, 2008; Burnard & Younker 2010; Gruenhagen, 2017), resulting in findings on various related aspects. Burnard and Younker (2010) found that children produce compositions of a higher quality when working with friends whereas Hargreaves and Joiner (2007) concluded that children engage in productive talk, which extends their creative thinking during group composing. Working with adolescents, Green (2008) found that teenagers worked through the processes of composing more successfully when collaborating. More recently, Gruenhagen (2017) found that children are capable of reflecting together and developing their compositional ideas. Moreover, work by Burnard & Younker (2002), Glover, (2000), and Miell and MacDonald, (2000) cited the advantages of children composing in collaboration as facilitating a high level of mutual engagement resulting in successful compositional outputs. Hargreaves and North's (1997) research showed that music is an intensely 'social' activity whereby individuals can benefit from working with others in collaborative contexts (Hargreaves & North, 1997; MacDonald et al., 2002). This was confirmed through musicological analysis in this study whereby creative products that encompassed musically related ideas from all group members, were more musically coherent when compared to those consisting of individual solo parts seemingly strung together.

The impact of children's individual musical experiences on their approach to collaborative tasks must also be considered. The following observation was made regarding the viola player in case study 4 tutored:

Player 3 (viola) uses chromatically descending pitches where he is clearly sliding around the strings to find a suitable pitch match, and unsure of the clashing sounds between the xylophone and piano parts as he looks between player 2 and 4. He shows intuitive musical sense using his instrument to provide sustained sounds as opposed to directly trying to imitate the rhythmic movement of the piano or xylophone. Throughout his individual musical part, he relates his contribution coherently to that of others within the group.

As children's development of musical identities, which have their origins in biological predispositions towards musicality, are shaped by the individual groups and social institutions that they encounter in their everyday lives (MacDonald, Hargreaves & Miell, 2002) it is possible that this particular individual, because much of his musical experiences were gained with a string group in addition to which he was in the middle of five musical siblings, defined his associations during the group activity. This is an example of how the views held by significant others, particularly music teachers, affect children's own self-concepts in powerful ways (Lamont, 2011).

In summary, whether participants were tutored or non-tutored impacted significantly upon their propensity to collaborate musically during group composing. Non-tutored participants collaborated more than tutored, and this was demonstrated musicologically within the coherence, structure and content and evidence of musical collaboration within their creative products.

6.7 Unique contributions to research

6.7.1 Introduction

The unique aspect of the presented research is that musical events have been captured to imply music communications between children, through the application of the SoI (Composing) framework and the perspective of applied musicology. This is unlike much other research in the field that explores musical creativity in relation to participant age or imposed external factors. Therefore, my research offers a new analytical approach about how children's compositions may be understood, assessed and used as an indicator of collaborative communication.

The practical implications of my research include new perspectives for music teachers on how composition may be taught and assessed in a school environment and confirms the value of developing children's understanding of sound through listening and composing in response to a wide variety of musical styles. Additionally, my research questions how traditional instrumental teaching methodologies may act as a possible inhibitor to musical creativity.

6.7.2 The impact of the research upon music pedagogy

This research makes a unique contribution to the field of music education as it explores the impact of instrumental learning and experimental music upon children's musical creativity, a previously un-researched area. The potential impact of the research findings upon the field, and in relation to the initial argument presented in chapter 2, will now be presented.

The gap between instrumental and classroom music learning as acknowledged in the work of Hallam (1998), Gaunt (2008) and Fautley (2010) is addressed by the findings from the present research, as they attempt to provide new insights into why this gap continues to exist but also suggestions as to how this may be addressed in educational practices. Additionally, the present research provides evidence as to the extent to which children's musical knowledge and individual expression is understood and nurtured by music practitioners as fundamental to children's experience of music in a classroom environment and the development of their musical creativity.

Another contribution is the finding that children approach compositional activities with their own individual understanding of the process of creating music and that the way in which this differs is affected by a variety of factors, including, as demonstrated in this study, their experience of instrumental learning. My findings showed that children with no experience of instrumental learning had the capacity to compose music of an equal level of complexity (see 6.6.1) to those that did experience instrumental learning. Although prior research (Glover, 2000, Swanwick & Tilman, 1986, Kratus 1989) shows that all children possess the propensity to compose, my research has specifically compared the compositions of children separated by the factor of musical knowledge, using solely the musical material that they created. This (that children with no experience of instrumental learning could compose at a level equating to those that did) is a new finding and one which can inform music teaching practices that the associations imposed upon and by learners of instrumental learning with musical creativity need to be adjusted. Whilst instrumental learning occurred alongside musical creativity for some individuals in this study, my research showed that the propensity for being musically creative also occurred without instrumental skill. This has implications for music teachers and also for children, particularly in association with self-identifying terms such as 'musicians' or 'non-musicians'.

Firstly, for music teachers, my research supports the aims and outcomes of a curriculum promoting musical creativity as embracing children's creativity from a wider perspective than just instrumental skill level. Secondly, class music teachers can assess musicianship, thinking of 'creativity' as defined through the development of ideas, originality and coherence as opposed to measuring aptitude in a narrow area (such as singing in tune). Thirdly, as shown in my research, collaborative composing and improvising activities as part of music learning can provide a wider perspective on a child's level of musical creativity and therefore also be used to enrich more formal assessments of musical aptitude.

For instrumental teachers, my research shows that the skills acquired through formal instrumental learning do not necessarily promote the development of musical creativity, and in some cases act as an inhibitor. This finding provides a new perspective and further supports the observations that traditional instrumental teaching practices do not promote musical creativity in individuals, but that improvising and composing do (McPhail, 2013, Koutsoupidou, 2008, Fautley, 2010). This observation is discussed further in the following section.

6.7.3 Closing the gap between instrumental lessons and the classroom experience

It is evident that in order to close the existing 'gap' between instrumental learning and learning music in the classroom, the approach taken by instrumental teachers needs to consider more than just technical skill and advancing through the grading performance system of structured syllabuses such as the Associated Board of the Royal Schools of Music. The present study is an example of how separate the two areas of learning are as conceptualisations of music. The applied musicological analysis of creative products presented above demonstrates that composing music involves much more than acquired technique, as instrumentalists in three examples found the presence of their own instrument to have a negative impact on their compositional output. Moreover, the participants did not demonstrate that the presence of formally learnt skills was advantageous to them during the compositional process in terms of their own development of ideas, or that of their ideas with others.

This research also suggests that the instructive nature of instrumental teaching and the constant visual references to printed notation during instrumental learning may impact adversely upon the way in which individuals learn to 'hear' music. This is fundamentally important to creativity, when children are working with sound, such as in group composing tasks, as it requires them to apply a different set of skills to those they employ in their instrumental lessons.

6.7.4 The SoI (Composing) framework within the context of applied musicology

Built on the Sounds of Intent framework of musical development (Ockelford, 2013) the adapted Sounds of Intent (Composing) model presented in this study provides a unique means of analysing children's compositions and improvisations in a specific and controlled manner, making it the first measurement tool to be designed purposely and used in this fashion. Building on the foundations of the SoI framework (Ockelford, 2013), my newly articulated SoI (Composing) model occupies a position at the forefront of current research in music psychology to explore the actual musical events of children's creative expressions, within the music itself.

Adaptations of this framework could prove useful to music educators in the assessment of composition, and in ensuring that the musical skills of children who may self-identify as non-musicians due to a lack of opportunity or interest in instrumental learning, are encouraged. The adapted model may also serve as a teaching tool and resource for the effective delivery of compositional activities, by assisting teachers with the structural aspects of a creative approach. In terms of musicology, the SoI (Composing) model may serve to build on existing practices of teaching music theory and analysis in current further and higher education contexts, broadening accessibility to musical understanding across a range of student levels.

6.8 Limitations of this study

This study worked with 69 children who are likely to experience more music at school than others since the school is an independent one. This is a limitation of the sample in that it may not represent a typical example of primary children in the UK. The disproportionate size of the sample (52 tutored and 17 non-tutored participants) was also a limiting feature and the reason for running non-parametric tests on the data. Parametric tests were also run, the results of which can be found in the appendices but could not be reported due to the data violating many of the parametric assumptions. However, these results were similar to those of the non-parametric tests and therefore show reliability of the data.

A second limitation is the SoI (Composing) scoring system in itself as there was a high proportion of repetition in response to scoring category levels. For example, 'motifs' were often not developed, particularly as the majority of the compositions used non-pitched percussion and ended up being considered similar to 'patterns.

A third limitation is that I did not deliver the study resulting in participants being mistakenly allowed to use their own instruments. This meant that certain responses were put at an advantage, however, this resulted in valuable information for me in terms of answering my questions regarding the impact of instrumental tuition, so transpired as a useful error.

Finally, there is the limitation of the unavoidable impact of an order effect (whereby differences in research participants' responses occur as a result of the order of events). This is often something research tries to counter-balance or avoid during an experimental study, however, in the case of this study, it was inevitable and expected that participants would improve at the act of composing in groups over the course of repeated task attempts. This was addressed by delivering the musical stimuli in a different order to each participant group.

6.9 Suggestions for future research

There is no doubt that instrumental learning has value for children in terms of societal and cultural practices, particularly within schools and the wider community, but the associations of instrumental learning with a wider concept of musical skills is problematic for teachers and students.

New teaching methodologies, therefore, could conceivably be developed based on this research, leading to further research in music education and applied musicology. Furthermore, the inclusion specifically of composition as an essential activity for the development of musical creativity, as purported by other research, (cf. Paynter, 2000) is also confirmed within this study. Empirical and theoretical research in this area could build on the research presented here.

Recognition of the gap between instrumental learning and thus of the musical knowledge that children may bring to classroom activities as a result of individual experiences, may assist teachers in developing a curriculum that offers more opportunity for differentiation, which opens up new areas for research. Moreover, developing a teacher's understanding of how to foster an environment for children to explore musical creativity meaningfully is crucial to the future of music education in schools, further opening up areas of research on musical creativity and the development thereof. Lastly, there are implications for future research on themes of social justice. Whilst this has not been an explicit focus for this research, the potential exists for perpetuating inequalities between children who receive privately funded instrumental tuition and those who do not. The findings of the research presented here have shown that composing in the way described and tested for this study not only levels the playing field but fosters the development of creativity and musical identity for non-tutored children and, in so doing, opens up opportunities for future research in this field.

Chapter 7 - Conclusion

7.1 Introduction

In Chapter 6, discussion, the research presented answers to the questions it set out to investigate. Clearly demonstrated is the strength of applied musicology as a methodological tool for compositional analysis, as it effectively uses musical material to analyse musical interactions and substantiate explanations, in contrast to the imposed speculations or assumptions upon children's creative processes that other previous research in this area has relied upon. This methodology also enabled in depth analysis, the results of which are complex and multi-faceted; they confirm that children's composing is an individually conceptualised process, but also that composing is influenced by the factors of instrumental learning, individual motivation, collaboration and different musical stimuli.

To conclude in Chapter 7, I would like to reflect upon the research presented and highlight the main features that have emerged from my line of inquiry, that of whether or not instrumental tuition and contrasting musical stimuli impact children's group composing and if so, what is the nature of the impact? Following this is the question, as music educators, of how this research will assist in the continued evolution of music education? These questions and the wider implications of the research in relation to theory and practice will now be addressed.

7.2 Overview of the study

In Chapter 1 I proposed an initial hypothesis - that experimental musical stimuli may induce greater musical creativity than Western classical music, and that instrumental tuition may not necessarily be related to musical creativity. I then explored the literature around these issues. Four research questions were conceived, from which followed an investigation into how existing theory regarding the analysis of composition was positioned within the field of music education. I considered the limitations of previously used musical theoretical frameworks, and following this exploration identified zygonic theory, the principles of which were then used to construct my newly conceptualised Sounds of Intent (Composing) assessment framework, in order to answer my research questions.

The SoI (Composing) framework was adapted from an existing framework (Ockelford, 2013) of musical development, and, due to its use of zygonic theory, provided a rigorous means for analysing composition. Zygonic theory's focus on the actual musical components and the organisation of sound was deemed an efficient and insightful method of analysing children's compositions. It is also a relatively new analytical initiative within the field of musicology, and therefore at the forefront of current music research. My research questions focused on specific aspects of composing as identified within the SoI (Composing) framework. These were musical coherence, the use of stimulus material, the structure and content of compositions and collaboration during composing. Chapter 4 detailed the quantitative aspect of analysis, followed by Chapter 5, which presented the qualitative aspect through case study analysis. Together these two set of results work as a singular musicological narrative from which it was possible to draw plausible explanations as to the nature of children's composing processes.

7.3 Key findings of the research

The results obtained were, somewhat, unexpected. I assumed that the children who learnt instruments (tutored participants) would automatically be more likely to create more logically structured compositions than the children who did not learn instruments (non-tutored participants), but this was not the case. The original hypothesis was answered in part, as the results showed that tutored participants' levels of musical creativity increased when they composed in response to experimental music compared to their responses to classical music and shown within their SoI (Composing) scores. This implied that for tutored individuals, experimental music induced more creative responses than classical, and this may have been influenced by the less formal musical structures of the experimental stimuli. The non-tutored participants showed little differences in their responses to either stimuli, which implies that their lack of formal learning resulted in less influence of musical stimuli overall on the way that they composed, however they did demonstrate a greater propensity to use the stimulus material to create something new, than tutored participants.

In addition to the results concerning musical stimuli, the results of analysis on the impact of instrumental tuition were unexpected as non-tutored participants scored higher than tutored participants in every aspect of the SoI (Composing) scoring system, displaying in particular greater levels of collaboration (as measured in the Interactive Composing category and in answer to Research Question 4). They also displayed a propensity to compose at an equal level of complexity to tutored participants, as well as greater development of ideas and more use of dynamics and expressive devices.

This implies that the formal instructive environment of instrumental learning not only has an effect on how tutored children collaborated during group music making, and related to a reduced tendency for tutored individuals to collaborate as compared to non-tutored, but also on their levels of musical creativity. Also highlighted by my research is the existing gap between one-to-one instrumental lessons and classroom music learning, further supporting an argument for a creative approach towards music teaching within both instrumental and classroom teaching contexts. Music teachers, if informed appropriately and effectively of 'creative' teaching practices, could then begin to bridge the gap between instrumental and class music learning, and reduce the association of instrumentalists as musicians.

I believe these findings are implicit to an argument for the presence and sensitive delivery of composing as a central component of a 'music education' in the wider sense. Within in the context of teacher training, this will now be discussed in the following section.

7.4 Teacher training in the UK

Another implication of this research to theory and practice is in influencing changes to the style and content of both instrumental and class music teacher training in the UK. At present, specific skills relevant to music teaching occupy a very small component of teacher training programs such as the Primary Postgraduate Certificate of Education (PGCE), with often just 6 hours spent on music subject knowledge. In addition, instrumental lessons that are often delivered by musicians who, although they may have extensive performance experience, have not necessarily acquired any formal ‘teacher’ training. This is shown in research in the area of music education that reveals a lack of confidence and subject knowledge of primary teachers in planning, assessing and delivering class music lessons, and of the lack of creativity such as improvising that exists in instrumental teaching. As the outline for what should constitute music provision within UK primary schools is not always clear, the quality and quantity of music provision varies greatly from one school to another, affected not only by the level of teacher skills, but also by funding and geographical area. This itself results in a potential deficit in the development of musical creativity of pupils across the UK. Where opportunity is available, it is often provided through external organisations, with a focus on instrumental tuition. Whilst specialist music colleges (such as the Royal College of Music) are beginning to invest more funds in teacher training for music students, this does not solve the wider problem of the lack of quality class music occurring in primary schools across the country.

Given this, I believe that this study highlights the need for an understanding of ‘creativity’ in the wider sense, that would then permeate approaches to teaching music, and that would be more beneficial to educators. The lack of a concrete definition of ‘creativity’ in an educational context could explain the scepticism from teachers as to how to teach composition and improvisation, which are ultimately the aspects of music learning that rely on creativity and not on a structural teaching method. Whereas art, for example, requires working with tangible materials, (such as paint) composing requires working with sound, an abstract concept, and not likely something that is necessarily considered a medium to work with by the majority of class teachers. The implications of having an understanding of the benefits of musical creativity for an educator are potentially extensive, particularly, I believe within the areas of children with learning difficulties such as auditory processing disorder, autistic spectrum disorder and language delay. As my study has shown, working creatively with sound is a possibility for all children and not reserved for instrumental learners. The benefits include individual expression, collaboration, experimentation and the acquisition of problem solving skills, all of which are essential life tools.

This study revealed the impact of how children understand sound through their levels of compositional coherence. To successfully translate the concept of 'teaching with sound' into actual pedagogical practices, it is crucial to have an understanding of how composing aligns with creativity. Rather than confining composing activities to the 'music lesson' and as demonstrated by the non-tutored children's aptitude for composing in this study, I propose an argument for the relevance and benefit of relating composing activities to a broader view of arts and general education. This includes opening the ears of children, which can be achieved through exposure to a multitude of sound experiences. One of those is experimental music, which was shown in this study to be beneficial in stimulating musical creativity in those children who had taken instrumental lessons.

7.5 Summarising comments

This research suggested that experimental music stimulated children with formal instrumental learning to compose with greater creativity than when responding to classical music. This finding was then linked to potential influences such as the need to collaborate with others to make sense of something unknown, which in turn increased the propensity to compose with greater creativity. This pertains to an argument for using experimental music as a creative stimulus, in and amongst more traditional classical forms.

Furthermore, this finding highlights the influence of the formal instrumental lesson as potentially restrictive to the development of musical creativity. Thus, it can be concluded that what children are learning is as important as how they learn it, in order to embed understanding at a fundamental level.

By understanding that composing occurs across all art forms could also encourage a bridging of the gap between instrumental learning and class music learning for children themselves. The formation of their individual musical identities of 'being good at music' reserved for those lucky enough to receive instrumental tuition becomes less distinct. As demonstrated by Schafer (1975) with the music box' and Paynter & Aston (1970) composing in response to sculpture and pictures, understanding what composing with sound actually *is* may enable music educators to move forward with this contentious area of music education. This study reveals how when sound is presented to children as an artistic medium through which to create something new, as opposed to something they must comprehend via formal rules, the bounds of musical creativity are infinite.

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