

The Appreciation of Electroacoustic Music – An Empirical Study with Inexperienced Listeners

Motje Mareike Wolf

Volume 1/3

Submitted in partial fulfilment of the requirements for the degree of

Doctor of Philosophy

at De Montfort University
Leicester

March 2013

Abstract	4
Acknowledgements and Thanks	6
Introduction	7
1 Music Appreciation and Contextual Studies	9
1.1 A metaphor	9
1.2 Music appreciation	10
1.3 Gaining understanding for electroacoustic music	14
1.4 Influencing musical preference with the help of information	17
1.5 The response to electroacoustic music changes according to information given - The Intention/Reception project.....	18
1.6 Tools for 'deciphering' electroacoustic music.....	19
1.7 Arousal-based music appreciation (Berlyne) and Prototypicality	20
1.8 A Prototype for Electroacoustic Music	22
2 The Pedagogical ElectroAcoustic Resource Site project and related projects and literature.....	26
2.1 The Pedagogical ElectroAcoustic Resource Site	26
2.1.1 The ElectroAcoustic Resource Site (EARS)	27
2.1.2 EARS II (P) Curriculum	28
2.1.3 EARS II (P) Environment.....	29
2.2 EARS II (P) Musicological Framework.....	31
2.2.1 The EARS II (P) musicological framework	32
2.2.2 A) Classification of sounds.....	32
2.2.3 B) Listening Experience.....	33
2.2.4 C) Modes of Discourse, Analysis, and Representation.....	36
2.3 Pedagogical Projects for Children with Emphasis on Contemporary Music, Electroacoustic Music or Listening.....	39
2.3.1 Projects based in schools	39
2.3.2 Projects outside of schools run by networks and organisations	44
2.3.3 Other Projects	46
2.4 Music, Technology and Teaching	48
2.4.1 Introduction	48
2.4.2 Advantages of using technology in the music classroom.....	48
2.4.3 Problems of using technology in the music classroom	51
2.5 Summary	55
3 to 5 The EARS II Pedagogical Framework	56
Introduction	56
3 Learning Theories and Approaches to Learning Design	58
3.1 Bloom's Taxonomy of Learning Objectives and Anderson and Krathwohl's Taxonomy for Learning, Teaching and Assessing	58
3.2 Learning Circle by Kolb	64
3.3 Behaviourism.....	66
3.4 Constructivism	66
3.5 Laurillard's Conversational Framework and Phenomenographic Design	68
3.6 Teaching and Learning Theories for the EARS II (P) curriculum.....	71
3.6.1 Anderson and Krathwohl's revised Taxonomy	72
3.6.2 Kolb's Learning Cycle.....	74
3.6.3 Behaviourist Elements	74

3.6.4 Constructivist Elements.....	77
4 Design of EARS II (P) Curriculum and Environment.....	80
4.1 EARS II (P) Curriculum	80
4.1.1 Aims and Objectives	80
4.1.2 Learning Outcomes.....	82
4.1.3 Introduction of Knowledge	86
4.1.4 EARS II (P) and the National Curriculum.....	90
4.2 The EARS II (P) Environment	93
4.2.1 Three Headers – Music, Technology and Theory.....	93
4.2.2 Learning Objects and Tutorials	94
4.2.3 Navigation.....	95
4.2.4 Design	97
4.2.5 Communication and Feedback.....	98
4.2.6 Stages of Development.....	99
5 An Application of Bates’ ACTIONS model.....	101
5.1 Access: How to approach the learning content?	102
5.2 Teaching and learning	107
5.2.1 Forming concepts.....	108
5.2.2 Advantage of concept-based presentation	112
5.2.3 Media.....	113
5.2.4 The role of Composition in the curriculum	115
5.3 Interactivity and Ease of Use	117
5.3.1 Visions of the multi-learner mode.....	117
5.3.2 Web 2.0 implications.....	117
5.3.3 User-interaction	118
5.4 Novelty	119
6 Methodology.....	120
6.1 Introduction	120
6.2 Preliminary Considerations of Appropriate Qualitative Methods	121
6.3 The EARS II (P) Methodology.....	122
6.3.1 Three test phases.....	122
6.3.2 Action Research (Methodology of Delivery).....	123
6.3.3 Teaching and Lesson plan design	124
6.3.4 Data Collection.....	127
6.4 The Tests	129
6.4.1 The Questionnaires.....	129
6.4.2 Listening Response Test.....	134
6.4.3 The Letter Test.....	135
6.5 Methodology of Evaluation	136
7 The three Test Phases	139
7.1 EARS II (P) and user-centred design: Test Phase 1.....	139
7.1.1 Participants	140
7.1.2 The Test – Aims, Methodology and Structure	140
7.1.3 Results	151
7.2 Development of the Prototype Second Stage: Test Phase 2	166
7.2.1 Aim of the test.....	167
7.2.2 Participants	167
7.2.3 Structure of the test.....	167
7.3.4 Results	168

7.2.5 Conclusions	174
7.3 Test Phase 3.....	175
7.3.1 Introduction	175
7.3.1.1 Aim of the Study	175
7.3.1.2 Structure of the Study.....	175
7.3.1.3 Participating Schools.....	177
7.3.1.4 Teaching support.....	178
7.3.1.5 Beta Study (CS01).....	179
7.3.1.6 Changes	184
7.3.1.7 Teacher Interviews	185
7.3.2 Evaluation of Case Studies 02, 03 and 04.....	187
7.3.3 Questionnaire 1	187
7.3.3.1 Case Study 2	187
7.3.3.2 Case Study 3	189
7.3.3.3 Case Study 4	191
7.3.4 Questionnaire 2	193
7.3.4.1 Case Study 2	194
7.3.4.2 Case Study 3	199
7.3.4.3 Case Study 4	204
7.3.4.4 Correlations.....	209
7.3.4.1 Discussion	220
7.3.5 Listening Response Test.....	222
7.3.5.1 Description of data / Definition of analytical units.....	222
7.3.5.2 Result of the first reduction of the material.....	223
7.3.5.3 Discussion of Codes emerging in the First Reduction.....	224
7.3.5.4 Analysis of Codes	225
7.3.5.5 Discussion	237
7.3.6 Letter Test.....	238
7.3.6.1 General observations	239
7.3.6.2 Evaluation	240
7.3.6.3 Knowledge-related codes.....	249
7.3.6.4 Preference-related codes	254
7.3.6.5 Method-related codes	262
7.3.7 Summary of Findings	264
8 Conclusions.....	266
8.1 Summary	266
8.2 Original Contribution of EARS II (P) Curriculum.....	267
8.2.1 Electroacoustic Music Education.....	267
8.2.2 Musicological Contribution	270
8.2.3 Music Pedagogical Contribution	271
8.3 Discussion	272
8.4 Further Research.....	274
8.4.1 Research Projects	275
8.4.2 Practical Projects	277
8.5 Final Conclusion.....	278
Literature.....	279

Abstract

The research contained within this PhD project forms part of the Pedagogical ElectroAcoustic Resource Site project of the Music, Technology and Innovation Research Centre of De Montfort University Leicester. This thesis contributes to current research in music education and musicology related to electroacoustic music.

The purpose of this research was to investigate the influence of teaching on the change in inexperienced listeners' appreciation of electroacoustic music.

A curriculum was developed to introduce electroacoustic music to 11 to 14 year old students (Key Stage 3). The curriculum was based on concepts distinguishing between electroacoustic music using (mainly) real-world sounds and generated sounds. The curriculum is presented in an online learning environment with an accompanying teacher's handbook. The learning environment represents the prototype for the pedagogical ElectroAcoustic Resource Site offering online learning, blended learning and classroom-based learning.

The website was developed following user-centred design; the curriculum was tested in a large-scale study including four Key Stage 3 classes within three schools in Leicester. In five lessons music using real-world sounds (soundscape and *musique concrète*) was introduced, which included the delivery of a listening training, independent research and creative tasks (composition or devising a role-play). The teaching design followed the methods of active, collaborative and self-regulated learning.

Data was collected by using questionnaires, direct responses to listening experiences before and after the teaching, and summaries of the teaching written by the participants.

Following a Qualitative Content Analysis, the results of the study show that the participants' appreciation of electroacoustic music changed during the course of these lessons. Learning success could be established as well as a declining

alienation towards electroacoustic music. The principal conclusion is that the appreciation of electroacoustic music can be enhanced through the acquiring of conceptual knowledge, especially through the enhancing of listening skills following the structured listening training as well as the broadening of vocabulary to describe the listening experience.

Motje Wolf, May 2012

Acknowledgements and Thanks

I would like to thank Prof. Leigh Landy, Prof. Stephen Brown and Dr. Simon Atkinson for the supervision of this research as well as Prof. Andrew Hugill and the Institute of Creative Technology for financing this research.

Further I would like to thank:

My examiners Prof. Simon Emmerson (De Montfort University) and Prof. Pete Stollery (University of Aberdeen) for great discussions during the viva.

Nils Müller for coding the final CMS and the productive discussions.

Dr. Simon Coupland for helping to set-up the Wiki for the second test phase.

Yingchun Tian for creating the first version of the EARS II prototype used in the third test phase.

Chloé Cutler, Robin Fencott, Dr. Adrian Furse, Michael Gatt, Andrew Hill, Dr. Christopher Johns, Sarah Mackenzie, Claire McGinn, Dr. Dylan Menzies, Dr. Lauren Redhead and Martin Rhodes for language corrections.

Jeffrey Mettlewsky for transcribing interviews of the first test phase and Louise Rossiter for transcribing the second teacher interview.

The participating schools: Judgemeadow Community College, Abington High School and Leicester Grammar School.

The participants of all test phases and the music teachers of the participating classes.

Adam Chetty, Bobby Hawkins, Gez McCoy, Steve Morgan, Annelie Nederberg, Dr. Sophy Smith and Brian Trinh for supporting the teaching during the study.

The composers Panos Amelides, Jared Blum, David Hindmarch, David Holland, Prof. Andrew Hugill, Jeffrey Mettlewsky, Annelie Nederberg, Neal Spowage, Elisabeth Szwarc, Dr. Rob Weale and Hildegard Westerkamp for providing material for the EARS II prototype curriculum.

The Music, Technology and Innovation Research Centre for an amazing research environment.

Introduction

“We need more methodologically strong evidence-based research for the missing rooms and suites of the ground and lower floors of the building representing sound-based music studies. Studies of impact and appreciation - the likes of the I/R project - need to be undertaken in this broad area” (Landy 2007a, 223).

This thesis aims to contribute to the body of knowledge in music education related to electroacoustic music. Under the frame of the pedagogical ElectroAcoustic Resource Site (EARS II) project it will investigate the ways in which teaching inexperienced listeners¹ concepts of electroacoustic music can enhance the appreciation of it.

The thesis approaches its intention through the development of a curriculum which addresses inexperienced listeners. It starts with an outline of contextual studies relating to musical appreciation (chapter 1), an introduction to the EARS project and an overview of current pedagogical approaches towards electroacoustic music including a literature review focusing on 'teaching music technology' (chapter 2). This is followed by the introduction of relevant learning theories (chapter 3). Following this, how these theories have been applied to the curriculum will be shown (chapter 4). Further pedagogical details of the curriculum are introduced in chapter 5. Following the methodology of Action Research, parts of the curriculum were taken into schools, where it was investigated how the content as well as the teaching methodology would relate to the target group. Chapter 6 introduces the methodology for these tests: their results can be found in chapter 7. Finally, in chapter 8 the conclusions from this research are drawn.

The prime focus of the curriculum was working with and listening to sounds. In this connection the music classroom was seen in the same way as Burnard outlines:

¹ In this thesis 'inexperienced listener' is understood as inexperienced in listening to electroacoustic music.

“The music classroom is where innovation and adaption occurs; a creative space where communication and interaction can take both real-world and virtual forms, in some cases with face-to-face interaction and side-by-side interaction whilst in other cases the interactions can be synchronous or asynchronous where learning is facilitated, influenced, shared, shaped and responded to by key stakeholders both inside and outside of the classroom and of class time” (Burnard 2007, 43-44).

This project is based within the EARS II project, which will be introduced in chapter 2. The EARS II project aims to create a web-based learning environment, introducing inexperienced learners between 11 and 14 years old to electroacoustic music. This PhD research contributes to the pedagogical foundation of this project. It further presents the development of a prototype of the EARS II curriculum, which will feed as proof of concept into the final development stages of the EARS II project.

Project partners have been in alphabetical order John Anderson, who designed the first Content Management System as well as the prototype of the program ‘sound organiser’; Pete Batchelor, who designed Java Applets that enable the user to do live sound manipulation; Nils Müller, who developed the current system of the online environment of the EARS II prototype; Yingchuan Tian, who developed the website used for the tests in the third test phase, and Rob Weale, who developed a prototype of the listening room as part of the listening section on the current EARS II prototype.

1 Music Appreciation and Contextual Studies

1.1 A metaphor

Imagine you have stepped into a new world. Houses do not look like houses anymore, streets not like streets. There are probably signposts, but the language on those signs is unreadable. You would have two options to react: option one is to panic and to run out of this world as soon as possible, the other, to learn the language and to try to get hold of a map in order to orientate yourself.

This is quite possibly the same situation for someone attending an acousmatic music concert for the first time. The listener is expecting a typical concert scenario, but there are no musicians on stage and the 'music' does not sound like anything that has been heard before. The only parallel that can be drawn between a 'typical concert situation' and an acousmatic concert is that the context in which the performance is presented is similar (sitting in a concert hall, looking onto a stage, etc.). So when people respond negatively to acousmatic music, does that mean that they do not like the music? Or are they overwhelmed by the situation? Are they maybe just confused, because they cannot distinguish between music and situation? What would happen if we gave these listeners a 'map' and a 'language course' for the electroacoustic music sound world before a concert?

These questions summarise the intentions of this project well as it is assumed that the appreciation of electroacoustic music can be enhanced for inexperienced listeners by explaining the key concepts of electroacoustic music. To prove this hypothesis a curriculum for electroacoustic music, from now on the EARS II (P)² curriculum, was developed and tested on inexperienced listeners aged between 11 and 14. This curriculum shall function as a 'map' and a 'language course' for inexperienced listeners in the new world of electroacoustic music.

² = Prototype of the curriculum for the pedagogical ElectroAcoustic Resource Site project.

1.2 Music appreciation

As the hypothesis of this PhD project deals with ‘appreciation’ the term needs to be looked at more closely. ‘Music appreciation’ has a number of connotations which will be discussed in the following section, as some aspects of music appreciation are more relevant than others in this context.

The National Curriculum in England expects pupils to be able to appreciate a wide variety of music whether they are familiar with it or not. However, it does not state how to achieve music appreciation.

The following quotations are the only quotations about music appreciation which can be found in the National Curriculum for music in Key Stage 3:

“Music learning develops pupils’ critical skills: their ability to listen, to appreciate a wide variety of music, and to make judgements about musical quality.”
and
“Understanding musical traditions: The way we respond to music is determined to a large extent by our culture. We need to learn how and why music is different if we are to appreciate unfamiliar music” (NC 101).

Although it is possible to interpret the word *appreciation* as *liking*, this cannot be meant here. *Liking* – albeit influenced by different factors from the environment (see discussions about musical preference later in this chapter) – is something highly personal and cannot be requested from any individual on command. Hence, it is not the aim of this PhD project to convince an individual to like electroacoustic music.

Grace Van Dyke More supports this view:

“No, we cannot teach appreciation, if by teaching we mean dictating, or compelling, or handing out something pre-digested, or drilling, or reasoning, or working experiments, or testing. Learning means self-activity, and the teacher’s job is to stimulate and guide this activity toward the desired end. What the student “learns” depends upon his own activity. Therefore, if we wish to “teach” music appreciation, we shall stimulate suitable activity - singing, playing, listening, reading, composing, as the need may be, - and then we shall guide that activity in such a way and with such contagious and radiant enthusiasm for the music that the majority of our students will experience that pleasurable and intelligent emotional response which, for lack of a better name, we call music appreciation” (Van Dyke More 1936, 16).

Looking closer into the meaning of music appreciation and its influencing factors is necessary.

The meaning of music appreciation has been discussed broadly with no agreement on a definition. Percy A. Scholes has even suggested that the term should be dropped as it has caused so much confusion (see Scholes 1936, 32). This is what has happened in recent times. *Music appreciation*, which has been “categorized in fields such as philosophy, psychology and sociology of music” (Barrett 2007, 606) as a term cannot be found in major music compendiums (see for example Deutsch 1999). While in psychology literature stimulus responses are investigated, sociological research deals with musical preference (see North and Hargreaves, 2008). In philosophy meanwhile, the original aesthetic question of ‘what is beauty’ has been replaced with philosophical accounts of musical experience (Barrett 2007, 606).

In the *Music Educators Journal* from 1936 an article summarises the view of selected pioneers of Music Education in the summary of the conference “What is ‘Music Appreciation’?” Although each author emphasises different factors leading towards music appreciation, knowledge and understanding play a major role for virtually all definitions.

Music appreciation cannot be fostered by listening to music alone.

In the past, many music education researchers have explained music appreciation with listening. This is evidenced by the concepts used by many music appreciation courses which are mainly based on listening activities (Smith 1936; Gehrkins 1936). However, there is more to an appreciation course, as Smith outlines:

“We may be justified in calling the listening experience a course in appreciation if it is given after a large musical experience and the purpose of the course is to analyze, classify and appraise. Appreciation follows and does not precede experience” (Smith 1936, 15).

To Anne E. Pierce, “appreciation is not necessarily based on knowledge, although information about a work or subject is an important factor and enhances in no small degree understanding and enjoyment.” She further says that appreciation is linked with the “desire to know more”, but defines music

appreciation as the “ability to discriminate between the good and the poor and to prefer the good to the cheap and tawdry” (Pierce 1936, 15). In this view music appreciation is linked with the “desire to know” and therefore linked with knowledge as well.

Karl W. Gehrken³ also criticises focusing only on listening when teaching appreciation. Instead he suggests defining music appreciation as follows:

“To appreciate music means to love it understandingly. Therefore teaching music appreciation implies the development of more and more love and understanding of music on the part of the learner” (Gehrken 1936, 15)

as well as:

“[...]all musical instruction is instruction in music appreciation” (Gehrken 1936, 16).

This quotation reflects the underlying thought that knowledge and understanding can lead to appreciation.

Grace van Dyke More defines music appreciation in a similar way as

“[...] an emotional response to an active experience in music – through hearing, singing, playing, or composing music – a response indicating intelligent pleasure in the music. It is one of those subtle things, like tastes, interests, and attitudes, which are by-products of education, yet the most valuable results of education” (Van Dyke More 1936, 16).

A common view among these music education pioneers is also that individual exploration and participation fosters music appreciation.

Mabelle Glenn outlines:

“The widespread effort to give music meaning in the lives of children is broadly termed ‘music appreciation’, and while much excellent work is bearing fruit in enriching lives, many honest efforts are going astray through lack of understanding” (Glenn 1936, 15).

Her criticism is that children “too often are given chronological facts and dates” and suggests that

“[...] information should come only as a by-product of experience; it is individual exploration that brings appreciation. Building desirable attitudes toward music is the first aim of all music education. This objective must be kept in mind through every activity, be it singing, playing, or listening” (Glenn 1936, 15).

³ President of US's National Association for Music Education from 1922 to 23.

Although facts and knowledge are criticised, the author is rather concerned to put it into context: knowledge and understanding are not neglected, but it is outlined that this cannot be the only access to music appreciation.

In Jacob Kwalwasser's definition, however, knowledge and the understanding of music play a major role:

"Superior musical intelligence, keen musical discriminations and perceptions, an active aesthetic attitude, a knowledge of music's functions and forms, and the power to understand the appropriateness of the means in the realization of the desired ends are but some of the characteristics of real music appreciation" (Kwalwasser 1936, 17).

Osbourne McConathy outlines that

"[...] 'music appreciation' [...] implies two distinct yet related ideas. On the one hand, it suggests sensitiveness to the aesthetic and emotional appeal of music, and on the other hand it includes an understanding of the elements and conditions out of which an art work came and of which it is the expression. Appreciation means neither the complete surrender to emotional reactions nor the coldly analytical intellectual appraisal. Yet both emotion and intelligence are essential to true music appreciation" (McConathy 1936, 17).

Finally, Peter W. Dykema defines music appreciation as

"[...] either (1) the state of esteeming adequately and thus highly the contribution which music makes to mankind, or (2) the activity of responding sensitively to the manifold beauties of music. In practice these two distinctions are combined so that we may say music appreciation means the adequate evaluating of music as an art" (Dykema 1936, 17).

More recently, instead of defining music appreciation, Hoa Huang (1997) argues in his article 'Music Appreciation Class Broadening Perspectives' that

"[being able to recognise] root organizational units and principles [i.e., pitch, motive, rhythm, timbre, and form] can enhance students' overall musical appreciation and can lead to an understanding of general principles of the organization of musical information" (Hoa Huang 1997, 30).

This implies that appreciation is part of the cognitive domain,⁴ as according to this quotation an analytical understanding is a prerequisite for appreciation.⁵

Also Leon Crickmore offers a definition of music appreciation: "[m]usic appreciation is defined as the ability to distinguish between what is generally accepted by experts as good and bad music". However, he continues a few sentences later: "[n]aturally, the acquisition of knowledge about music has a

⁴ Introduced in more detail in chapter 3.1.

⁵ Therefore this sentence is somehow tautological: Understanding leads to appreciation and to understanding.

part to play in the deepening of a listener's appreciation of music" (Crickmore 1968a, 240).

Crickmore warns that too much focus on understanding can hinder appreciation:

"The importance of analytical instruction as a means of improving a listener's understanding of music has been openly acknowledged as long as there have been classes in music appreciation. [...] Disproportionate discursive activity can in fact destroy aesthetic intuition. [...] Talking about music analytically can be a delight in its own right, especially if one already enjoys the music that is being discussed" (Crickmore 1968b, 293).

Although this sounds very convincing and is in line with previous literature, there is a problem with statements like this. Deciding what is good and what is bad music is very difficult, if not impossible. This should be a question for music aesthetics and not for analysis. Analysis can only show whether there is a tonic, a suspension or (in sound terms) speak about texture, timbre, etc., while music aesthetics deal with the interpretation of the findings of the analysis.

Crickmore further quotes Jacques Maritain:

"The good method requires first the intuitive delight, both emotional and intellectual, in the work's beauty, and second, the rational disquisition of the very causes of this delight and of the intelligible regulations by which the work has been internally and vitally ruled and structured" (J. Maritain, *Education at the crossroads*, New Haven, Connecticut: Yale University Press, 1943, footnote p. 52; in Crickmore 1968b, 293).

Summarising the literature discussed above, it can be said that music appreciation consists of three components: understanding of the music, valuing the music and possibly, but not necessarily, liking the music.

1.3 Gaining understanding for electroacoustic music

An understanding of music can be achieved through learning and teaching. Music teaching normally covers realms such as knowledge about music history (different styles, a repertoire of music, composers and their biographies), music theory, as well as playing a musical instrument or singing. Within this PhD thesis will be argued that this is also the case for electroacoustic music. Several reasons exist that electroacoustic music is underrepresented in schools

currently. The first and foremost reason is that presently no curriculum can be found (in use) in the United Kingdom that covers the key aspects of electroacoustic music (see National Curriculum). Also, it is difficult for teachers to enhance their own knowledge about electroacoustic music, which is not necessarily taught at university. Getting hold of information about this music addressing novices in the field is not easy, which makes it more difficult to teach.

Learning and developing an understanding for music can provide an individual with the tools to value the music. Yet valuing a musical style does not equate to liking a musical style. *Valuing* in this sense means to recognise the worth of a piece of music. An individual, who judges music, will still be allowed to say that a style does not fit their personal preferences. However, this does not mean that the listener is unable to see the artistic significance within it. For an audience that has never experienced or learned anything about this type of music before, valuing electroacoustic music is very difficult, if not impossible.⁶

Liking can, but does not need to, result from learning and valuing music. However, the studies about music preference, which will be introduced later in this chapter, will show that altering factors, such as *knowledge*⁷, can influence musical preference. This is indirect proof that *knowledge* is a precondition for music appreciation.

Conversely, the term *access* has been used in connection with researching appreciation of electroacoustic music in the Intention/Reception Project (see Weale 2006). *Access* can be gained by learning about music, but can also happen spontaneously, as shown by Landy in the research regarding the “something-to-hold-onto factors” (Landy 2007a).⁸ While the Intention/Reception Project, which will be introduced later in this chapter, has investigated

⁶ This would be the same as to expect from the person who came into the new world, to judge it against artistic merits and inner values which stem from conventions and learning of the old world.

⁷ Different types of knowledge will be looked at in chapter 3.

⁸ Appreciation can also happen spontaneously, but access takes place before appreciation: therefore spontaneous appreciation can be caused by spontaneous access to the music and therefore falls into the same category as spontaneous access.

connections between access and appreciation, the EARS II (P) study will look at connections between understanding and appreciation.

To reiterate: music appreciation means being able to develop a sense for music. An important role for developing appreciation is *understanding* the music. Being able to understand, for example, how certain styles of music are composed or why a composer created pieces in the way they did, enhances the accessibility to this music.

The above discussed aspects of the word *appreciation* which are mirrored in discussions about musical preference, as well as their use in research that considers the accessibility of electroacoustic music. The success of the EARS II curriculum is dependent on all meanings of appreciation. This means: if it were impossible to alter the attitude towards a certain style of music, it would be impossible to introduce unknown styles to inexperienced audiences.

Whenever the word *appreciation* is used within this thesis, it is always meant to encompass everything that has been discussed above (*understanding, valuing and liking* a musical style). However, the main factor of appreciation is strongly related to *understanding*. The rationale for this PhD project is based on findings by researchers within the field of electroacoustic music, or by music psychologists within the last century.

1.4 Influencing musical preference with the help of information

According to North and Hargreaves it is possible to influence musical preference. They state that among other factors

“[...] so-called ‘prestige effects’ occur when people have little or no knowledge of the music in question and so instead base their opinion on whatever information they are able to glean from other sources” (North and Hargreaves 2008, 100).

In 1948 musicologist M. G. Rigg carried out a study about musical preferences in connection with extra-musical information. Six pieces were played to three groups of participants who were given the task of rating their enjoyment of listening to the music. Three of the pieces were compositions by Richard Wagner. After that, the pieces were played again; this time with differing information about the music. The first group was given the information that Wagner was Adolf Hitler’s favourite composer, the second received no further information and the third group received a description of this music in romantic terms. The result of the experiment was that after the second listening the enjoyment increased in all groups. The smallest increase, however, was seen in the “Hitler group” and the strongest in the “romantic group” (see North and Hargreaves 2008, 100).

David Johnson outlines correctly that “Rigg’s study lacks ecological validity as the participants were all college students and, as such, do not fully represent the general population” (Johnson 2009, 7). Nevertheless, it shows:

- a) that it is possible to influence musical enjoyment with extra-musical information (the reaction to the “Hitler information” is a classic example for the “prestige effect” mentioned by North and Hargreaves) and
- b) that enjoyment can increase just through repeated listening (as the group which received no further information saw an increase in enjoyment as well).⁹

However, referencing Crozier and Chapman (1981) North and Hargreaves state

⁹ Berlyne’s research, which will be introduced later, has found out: “Repeated exposure has reduced its level of complexity to a degree that is liked” (North and Hargreaves 2008, 83).

“[...] that prestige effects across the arts as a whole are sometimes small, unstable, and difficult to replicate, and that there are several limitations to their scope. For instance, there seems to be less scope for them to occur in relation to familiar (rather than unfamiliar) works. Furthermore, the way in which the art works are labelled seems crucial, as is the extent to which participants pay attention to them (or try deliberately to ignore them) when making their judgements” (North and Hargreaves 2008, 100).

According to this, the given information seems to be crucial in relation to the aesthetic judgement.

1.5 The response to electroacoustic music changes according to information given – The Intention/Reception project

Another project whose outcomes have influenced the shape of the research for this PhD project is the Intention/Reception (I/R) project. This project was carried out by Rob Weale (Weale 2006), supervised by Leigh Landy, at the Music, Technology and Innovation Research Centre of De Montfort University Leicester. A key question of the I/R project was to investigate the connection between audience response and the intentions of composers focusing on so-called ‘something to hold on to factors’ and the dramaturgy of electroacoustic music. The I/R project investigated the connection between the appreciation and accessibility of electroacoustic music. Participants, split into groups of highly experienced, experienced and inexperienced listeners, had to listen to three different pieces in three listening sessions. For each listening procedure they received more information about the piece (title, comments on the composer’s intention and a dramaturgy of the work). Participants had to fill in a questionnaire for each listening procedure. The outcome of the project has shown that a great part of the composer’s intention was received by the audience and also – highly interesting in context of EARS II (P) – that it is possible to gain deeper appreciation of electroacoustic music this way:

“Where access and appreciation has been demonstrated to be problematic for these [inexperienced] listeners (most often in areas related to sound abstraction), the study has clearly shown that when offered pertinent aspects of a work’s dramaturgy, listeners are able

to use this information to assist their listening experience in problematic areas” (Weale 2006, 196).

Overall, the Intention/Reception project shows that a better response to electroacoustic music occurs when a) recognisable real-world sounds are present and b) when a dramaturgy is given (Weale 2005, 2006; Landy 2007a, chapter 1). This research shows further that it is not only possible to understand the composer’s intention, but also that this understanding leads to a better appreciation.

“Results do demonstrate that when inEx [= inexperienced] listeners are offered information that relates to the abstract content (the reasons for its presence in the work), they are able to identify and understand its use (from both a real-world referential and to a significantly lesser extent a musical/acoustic perspective), and so use it to appreciate the work” (Weale 2005, 235).

However, the I/R project focused on the composer’s intention and listener’s response to specific pieces, which does not necessarily allow generalisation. As Leigh Landy states in his book *Understanding the Art of Sound Organization*

“[...] what has been missing in that research [about ‘something to hold on to factors’] is the holism that can be gained by not only offering things to hold on to aurally, but also offering information of intention as a potential access tool” (Landy 2007a, 37) and “[...] when intention meets reception in the listening experience, accessibility is made more likely” (ibid).

1.6 Tools for ‘deciphering’ electroacoustic music

The research related to the EARS II (P) curriculum takes these results a step further. If it is possible to enhance access and appreciation of inexperienced listeners for three pieces, it might be possible to do this with a larger part of electroacoustic music. This means not only to educate the audience in specific cases – such as the three pieces tested by Weale and another three pieces tested in a later Intention/Reception study by Landy (2006) – but also to give the audience the tools to understand the key concepts of this music. Having a familiarity with these tools, the audience will be able to “decipher” electroacoustic music in a broader way and therefore gain a better appreciation. One of the tools the I/R methodology offers are the ‘something to hold on to factors’ (SHF). This is a list of parameters which can help the listener to

understand electroacoustic music better. This list was established by Leigh Landy (1994) and embraces factors such as:

- parameters (dynamics, space, pitch and rhythm),
- homogeneity of sound and the search for new sounds,
- textures not exceeding four sound types at once and
- so-called programmes, which describe the actual sounds in more details. (Landy 2007a)

The parameters rhythm, pitch, duration and timbre, as well as *programmes* have been important for the EARS II curriculum. The parameter *programmes* has been developed further into concepts of using sounds, applied to the whole history of electroacoustic music.

Looking closer at the theory of the SHF, one factor seems especially relevant in connection with the EARS II (P) curriculum research: the SHF dramaturgy (Landy 2007a, 52-53). The information from the composers about their own pieces, which accompany the information given to the participants in the I/R project, presents in a small scale what the EARS II (P) curriculum aims at with a much more general and universal approach.

So if it is possible to help inexperienced listeners to appreciate the music by giving them the dramaturgy of the pieces, why should it not be possible to enhance appreciation by giving the listeners the tools to figure out the dramaturgy (and other SHFs) by themselves, and therefore to enable the listeners to access electroacoustic music without being dependent on other people's help (such as composers, researchers, teachers...)?

1.7 Arousal-based music appreciation (Berlyne) and Prototypicality

The rationale for this PhD project is not only based on research in music appreciation as outlined above, but also on findings of music perception research. In the so-called 'arousal theory' by Daniel Berlyne, music is rated

according to its “arousal potential which in practical terms refers to the amount of activity they produce in the ascending reticular activating system” (Hargreaves and North 2008, 77). After conducting a study where participants had to rate acoustic stimuli according to collative properties (familiar – novel, simple – complex, expected – surprising, ambiguous – clear, stable – variable). Berlyne came up with the following result:

1. Music which is predictable is liked better and
2. Music which is familiar is liked better (Berlyne 1971).

However, only music that causes a *moderate* arousal for complexity and familiarity is preferred by the listener. Both factors, predictability and familiarity, are important when researching the appreciation of electroacoustic music. As electroacoustic music is a mainly unknown style of music, it is a type of music which is neither predictable nor familiar for inexperienced listeners. Electroacoustic music is not predictable, nor familiar: to go back to the example in the beginning of stepping into a new world, listening to electroacoustic music for the first time is like stepping into a completely new sound world, which can be alienating. It is not as predictable to the listener as for example a popular music piece based on a traditional I–IV–V–I structure. Unusual musical material is used and the musical structure does not follow known patterns. All these factors make it very difficult to predict the next stimulus.

That electroacoustic music is not predictable goes hand in hand with the fact that electroacoustic music is not familiar. If the listener has never heard electroacoustic music before, it is not familiar to them (obvious though it seems). There is not much of an awareness of electroacoustic music in society, although some of the popular roots might be known (for example artists such as Aphex Twin or musicians of the experimental turntablism scene). Electroacoustic music is played rarely in public or on the radio, both of which are common ways to access music. Additionally, when an inexperienced listener hears electroacoustic music it is not only an unknown piece of music: even the material of which electroacoustic music is composed is often not

considered to be musical material (environmental sounds, noise etc.). This represents another reason for not being familiar with this music.¹⁰

This leads to a vicious circle: Music is appreciated more when it is familiar. Electroacoustic music is not played very often in public spaces (radio, concert hall), so listeners are not confronted with this music frequently in a passive way (as they are for instance with the latest pop music played in shopping malls) and therefore have to show more self-initiative to listen to it (but probably do not even know that it exists).¹¹ Consequently, if listeners cannot access this music easily, they will probably not listen to it. Therefore they will not be familiar with this music, which leads to the problem that radio and concert halls will not promote this music, because radio and concert halls depend on regular listeners and will therefore not play much music which could reduce numbers of the audience. This, again, makes it more difficult for the listener to access electroacoustic music.

1.8 A Prototype for Electroacoustic Music

“Many studies in cognitive psychology have indicated that people classify stimuli by successfully matching them with an abstract schema, or ‘prototype’, representing the appropriate category (Posner and Keele, 1968; Reed, 1972). In other words, our everyday experiences are classified more easily if they correspond with a prototype for that kind of experience. These prototypes come about through experience of the world, so that through repeated exposures to exemplars of a category we learn what the prototype should be” (North and Hargreaves 2008, 85).

Electroacoustic music challenges the perceiver’s listening abilities. New listening strategies are required to access this music. Electroacoustic music does not consist of musical notes; elements which usually are associated with music, such as musicians, scores and musical instruments, are not present anymore. This means – and this is a second important theory – that this

¹⁰ As will be shown in chapter 3, there are projects which try to familiarise inexperienced listeners with electroacoustic music. Although this is a good start, it is not enough.

¹¹ A lot of electroacoustic music is available online. However this demands an active approach of searching for this music. If the listener does not know about the existence of the music, it is unlikely that s/he will come across it this way.

experience does not match any prototype of music in the inexperienced listener's mind.

That there is a preference for stimuli matching to existing prototypes was first published by Whitfield and Slatter (Whitfield and Slatter 1979). According to North and Hargreaves, the theory is at the present time more associated with Colin Martindale (e.g., Martindale and Moore 1988), whose work is based on a neural network approach. Martindale and Moore's theory implies that the

“[...] mind is composed of inter-connected cognitive units: each unit holds the representation of a different object. Units coding more prototypical stimuli are activated more frequently because it is these stimuli that are experienced most frequently. Therefore, units coding prototypical stimuli activate more strongly than do those coding atypical stimuli” (Hargreaves and North 2008, 85).

This means, that it is more probable that a stimulus activating more cognitive units will be rated higher in the aesthetic preference of the listener. An over-stimulation of the cognitive units will result in a chaos of stimuli, which could probably be rated negatively by (in this case) the listener. So the activation of the cognitive units needs to be moderate for the same reason as in Berlyne's arousal theory. However, both Berlyne's arousal theory study and the prototype theory have been criticised as rather vague. Especially the prototype theory could be read as a “model [that] would state simply that a listener should prefer the song that sounds most like the music he or she is usually exposed to” (North and Hargreaves 2008, 87). This leads inevitably to the following statement: “We like music that sounds similar to music we like!” (ibid). Which brings to mind the vicious circle of electroacoustic music perception, pointed out a few paragraphs ago. Both theories show a cultural dependency. Critical attributes, which form concepts on which prototypes are based, can only be defined relative to the (musical) culture “or [...] relative to the music to which a listener is typically exposed and for which he/she already has existing cognitive representations” (North and Hargreaves 2008, 87).

Although all aspects of these criticism are true, the EARS II (P) study still benefits from both of the theories:

1) If simply not being exposed to electroacoustic music is the reason for a low preference for electroacoustic music, this circumstance could easily be changed. However, the exposure to the stimuli alone will not be sufficient to change the appreciation of electroacoustic music. Society is exposed to several elements of electroacoustic music without being aware of them, such as sound effects and surround sound systems in the cinema as well as cross-over of electroacoustic music and pop music¹² to mention only a few cases. Nevertheless, general behaviour towards electroacoustic music does not seem to have changed.

2) Cultural dependency is, however, an important point and may not be neglected when studying music. But this is the danger of virtually any study, which uses full musical pieces and not just single acoustic stimuli. Though, if building a prototype depends on cultural background, this is not problematic, as the criticism relates to a condition in which the prototype has already been built. This study, on the other hand, investigates the appreciation of inexperienced listeners, who will not have had the chance to develop a prototype for electroacoustic music.

Despite the criticism of these theories, they show potential for the research in inexperienced listener's perception of electroacoustic music. As inexperienced listeners are unlikely to have a prototype for this music, it will be difficult for them to compare the new listening experience with something familiar. This makes it very difficult for them to predict the next acoustic stimulus. Therefore the arousal of predictability will be very low, which according to Berlyne's theory leads to a lower rating. In other words:

"[...] a particular person's prototype of 'music' is imbued with factors that are crucial to Berlyne's theory also: Berlynian factors contribute to prototypicality, such that the two are not so different as they first appear" (North and Hargreaves 2008, 87).

¹² The artist Björk, for example, is strongly influenced by Karlheinz Stockhausen and shows elements of *musique concrète* in her music, see Martin Lücke 'Björk – Avantgardistischer Pop oder poppige Avantgarde' in Proceedings of XIV. Int. Kongress der GfM, Leipzig, Oct. 2008, in print. The connection of electroacoustic music and pop music is discussed more generally in Feist 2008, Thom 2008 focuses on techno and electroacoustic music, and Smith 2009 and 2010 on experimental turntablism.

It could be interesting to conduct a study on electroacoustic music perception, following Berlyne's methodology and using the same collative variables, in order to find out if teaching participant electroacoustic music will influence the answers.¹³

¹³ More information on this can be found in chapter 8.

2 The Pedagogical ElectroAcoustic Resource Site project and related projects and literature

The following chapter will introduce the EARS project in more detail. Furthermore, it will discuss the musicological framework underlying this thesis. In addition, pedagogical projects that deal with electroacoustic music will be introduced and an overview of the current literature dealing with teaching music technology will be given.

2.1 The Pedagogical ElectroAcoustic Resource Site

In order to follow up the research questions outlined in the previous chapter a curriculum has been developed, which will function as a proof of concept for the final EARS II project. With the pedagogical ElectroAcoustic Resource Site (EARS II) an online environment will be created based on the current ElectroAcoustic Resource Site (EARS) in order to introduce inexperienced listeners to the field of electroacoustic music. In a vision paper of EARS II dated 2007 Landy outlines that EARS II shall “offer a clear, educational innovative alternative” (Landy 2007b, 77). To support this goal of being an educational project, a curriculum had to be developed that accompanies the website to change it from an informational database only into a learning environment.

Following the example of the CD-ROM *La musique électroacoustique* by the Groupe de Recherches Musicales (Ina/GRM-Hyptique 2000)

“EARS is [...] planning its own tripartite project [...]. It, too, involves an *understanding* aspect on what has been named “EARS II”, an adaptable *listening* methodology supporting access and appreciation, part of the MTI’s ongoing Intention/Reception (I/R) project and a ‘learning by *doing*’ aspect by way of the Sound Organiser audio software program currently under development for any novice user group” (Landy 2007b, 77 italics in original).

This PhD project has focused on the development of a prototype of the EARS II understanding part as well as a prototype of the learning environment.

2.1.1 The ElectroAcoustic Resource Site (EARS)

The EARS II project is part of the ElectroAcoustic Resource Site project, which will be introduced in the following paragraphs.

The ElectroAcoustic Resource Site project was first established in 2001, with the aim of providing academic information for researchers in the realm of electroacoustic music. EARS has been co-ordinated by Leigh Landy and Simon Atkinson at the *Music, Technology and Innovation Research Centre* (MTIRC) of De Montfort University Leicester and is supported by the MTIRC as well as an international consortium.

In 2002 the first version went online containing an English language initial glossary and an index. Today, the website is presented with a multi-lingual glossary with definitions of about 500 terms which are organised under six headers (Discipline of Study, Genres and Categories, Musicology of Electroacoustic Music, Performance Practice and Presentation, Sound Production and Manipulation, Musical Structure), as well as an extensive bibliography of over three thousand items and a thesaurus. Furthermore, it provides details of online publications. Currently, the website is translated into five languages: English, German, French, Italian and Spanish. In a collaboration with the university of Beijing a Chinese version of the website is in progress (the project is called CHEARS, which stands for *Chinese ElectroAcoustic Resource Survey*). A Greek translation is also being prepared.

The project is mainly text-based. Audio files or other media formats are available via links. As the EARS website addresses researchers and experienced listeners (such as composers) in particular, this is sufficient information.

Further information about EARS can be found in Landy 2007a and Landy 2007b.

The following two sections offer a brief summary of the EARS II (P) curriculum and the EARS II (P) environment. A more detailed description, including the pedagogical rationale can be found in chapters 3-5.

Sometimes it is difficult to separate descriptions of the environment and of the curriculum as the curriculum must function in the environment, but does offer additional features as well. Hence some overlap of these sections is inevitable.

2.1.2 EARS II (P) Curriculum

As mentioned above, the EARS II (P) curriculum is aimed at inexperienced listeners aged between 11 and 14, which corresponds to Key Stage 3 of the National Curriculum of England, Wales and Northern Ireland. The curriculum has been designed on the one hand as an online curriculum to work within the EARS II (P) environment and on the other hand also as a classroom-based curriculum. A new framework of terms has been developed, based on the terms introduced on the EARS website. Those were organised under three headers: Music, Technology, and Theory. These headers were developed following both a top-down and bottom-up approach. The bottom-up process included searching on through the terms on EARS following the questions:

- What is absolutely necessary to know?
- What might spark and retain the interest of the target group?

In the top-down process terms were added or deleted according to two rules: Only those terms were used in the curriculum, which

1) are related to each other (for example soundscape and sound walk; *musique concrète* and listening strategies etc.), and

2) which are also understandable for children without extracurricular knowledge (for example praxis of basic sound manipulation yes; acoustics no).

One of the most important decisions was to introduce the information through concepts, such as music with real-world sounds and music with generated

sounds. Sound itself has been chosen as the critical attribute to form these concepts. (Please see chapter 4 for a more detailed explanation.)

Based on active learning the curriculum encourages students to either explore the content of the learning environment on their own or to follow a given pedagogical path (tutorials). Used as blended learning¹⁴ tool in a classroom a higher variety of teaching methods can be applied, such as collaborative or problem-based learning.

2.1.3 EARS II (P) Environment

The EARS II (P) Environment was built in order to allow learners and learning facilitators from all over the world to access the EARS II (P) curriculum. The curriculum is presented in short learning units called learning objects. These learning objects can be combined to form tutorials. More details on learning objects and tutorials will be given in chapters 4 and 5. Learning with the EARS II environment is possible in two ways:

First, as a single-user option, which means that learning on the EARS II (P) Environment alone at home is possible. However, this option offers limited possibilities: the environment functions currently more as a knowledge repository with some games. Thus, limited asynchronous online learning is possible. Second, it can be used in school following a blended learning approach. The teacher then can include learning with the website in the normal classroom lessons, which has the advantage that school students will be able to work collaboratively face to face, which is at present regarded as the best teaching method (Laurillard 2002). Following user-centred design the learning environment was created to meet the needs of the target group. Every idea was therefore tested with the target group, especially the navigation and the ways of presentation/teaching content. (More information on the user-centred design approach can be found in chapters 7.1 and 7.2.)

¹⁴ Blended learning will be introduced in more detail in chapter 4.

Although the content is presented following concept-based teaching rather than focusing on history, a time line will be present at all stages to help the user to be aware of the history. By clicking on a year, the user will also be able to have a quick overview of what else happened in the course of this year. As this is a dynamic web feature this can be found only in the online prototype.¹⁵

As mentioned above, the EARS II (P) project is split into three sections which were to be realised by different researchers:

The 'listening part' is based on the findings of the Intention/Reception project and uses its methodology for the development of a guided listening process. Rob Weale was responsible for this part and has developed a prototype, which can be found on the website under the section 'Listen' as a Flash-based application. A piece is played online and pointers in the form of words or questions appear during the listening process, whenever an interesting part of the music occurs. This way the listener will be made aware of 'something to hold on to factors' which might not have been picked-up as easily by the target group while listening on their own.

The 'making' part included the development of a child friendly sequencer program that will accompany the learning environment. This program will not only allow children to compose a piece of music, but it gradually teaches sound manipulation and compositional strategies. A prototype of the program, which is called 'sound organiser', has been developed by John Anderson in collaboration with De Montfort's Music, Technology and Innovation Research Centre. The software itself is being created by an European consortium and will be complete in 2013, supported by an EU Culture grant.

The learning part (called 'Explore') focuses on the understanding of electroacoustic music and includes the development of a curriculum. It functions as a basis for the other two parts, explaining electroacoustic music, the technology and also relevant theoretical questions which arise in connection with electroacoustic music. The prototype of this part is this PhD project. More

¹⁵ The timeline only functions as proof of concept on the EARS II (P) environment.

information on curriculum and environment can be found in the outline of the pedagogical framework in chapters 3-5.

Two further projects have taken place at the Music, Technology and Innovation Research Centre that are relevant to mention:

David Holland investigated in his MA Project 'Heighted Listening Skills as Access Tool' (2012) the raising of pupils' sonic awareness in workshops through listening exercises. His methodology followed the Intention/Reception methodology. Further tests have also been carried out with blind or visually impaired subjects to compare how they respond to the piece played in the test.

A further curriculum for pupils between 9 and 14 years is in development by Nasia Therapontos as part of her PhD Project at the MTIRC. Her aim is to integrate sound-based music in music education focusing on the educational system of Cyprus, where she has run her tests. Her work will be available in 2013.

2.2 EARS II (P) Musicological Framework

The research related to the development of the EARS II curriculum draws on findings from different fields related to electroacoustic music and musicology. The following section links back to definitions which can be found under the header Musicology of Electroacoustic Music (MEM) on the EARS website. This section also relates to the discussion of MEM and the proposed framework for the study of electroacoustic music introduced by Leigh Landy in his book *Understanding the Art of Sound Organization* (2007a).

His framework is influenced by the structure of the EARS website (Landy 2007a, 181). Landy lists the following fields:

- (1) Classification: from sound to work level
- (2) The listening experience
- (3) Modes of discourse, analysis, and representation
- (4) Organizing sound from micro- to macro-level
- (5) New virtuosity
- (6) New means of presentation
- (7) Achieving interdisciplinarity and holism" (Landy 2007a, 188).

This framework can be adapted in order to describe the research related to the development of the EARS II curriculum. This adapted framework provides the basis for the other two frameworks introduced in this thesis.

A smaller framework has been adapted from Landy's framework for the EARS II (P) curriculum. The target group of the EARS II (P) curriculum is much younger (or at least less experienced) than the target group of the EARS website. Hence the adapted framework only contains three categories (described below), while Landy describes seven categories relevant for the study of electroacoustic music. Choices also had to be made in the next deeper level of the structure. The categories in Landy's framework contain a lot of discussions, theories and findings, of which the important and basic ideas were picked for the categories of the EARS II (P) musicological framework.

2.2.1 The EARS II (P) musicological framework

A) Classification of sounds: real-world sounds and generated sounds (from sound to music) as starting point for the research and the pedagogical concept of the curriculum

B) Listening experience: reduced listening and referential listening as a starting point for the learner – listening is the first way they come in contact with electroacoustic music

C) Modes of Discourse, Analysis, and Representation: aural analysis and graphical representation of sounds

2.2.2 A) Classification of sounds

The classification of sounds introduced was kept as simple as possible. The most significant classification, which has been the starting point for the development of the curriculum, is the distinction between real-world sounds and generated sounds. On this basis the terms and categories found on the EARS

website have been clustered. The case studies have shown that introducing the content within this matrix worked for the target group. (For more information see chapter 7.3.)

Borders between real-world sounds and generated sounds can be blurry. From the aural perspective a heavily manipulated real-world sound can be difficult, if almost impossible, to distinguish from a generated sound. Furthermore, when listening to a generated sound such as a mobile phone ringtone, in the real world the function of the sound changes, although its original source does not.

However, Landy points out: “What is likely, and this is quite understandable given the vast variety of sounds and compositional approaches we are dealing with, is that no single classification system will be universally applicable” (Landy 2007a, 189). This does not mean that one does not need to be exact. But even though this might not be a scientifically accurate classification, it does work on the pedagogical level and hence fulfils its purpose.

2.2.3 B) Listening Experience

It has been crucial to consider the listening experience in great detail. After all, this is the initial experience the learners have with this music. Thus, seeking out the appropriate theories and applying them carefully to the curriculum has been a part of the research.

On the EARS website the following terms can be found related to Listening Experience:

- “- Acousmatic
- Causal Listening
- Clairaudience
- Composed Space
- Contextual Listening
- Gesture
- Intention and Reception
- Listening Strategy
- Modes of Listening
- Morphology
- Quatre Ecoutes
- Reduced Listening
- Referential Listening

- Semantic Listening
- Sound Image
- Source Recognition
- Source Bonding
- Surrogacy
- Technological Listening
- Texture
- Timbre
- Utterance" (Landy 2007a, 195).

This list offers a clear picture of how many aspects of listening need to be taken into account when devising a pedagogical resource. As there is a special focus on inexperienced listeners, this adds the level of pedagogical introduction of these listening strategies. Criteria for listening strategies used in the EARS II (P) curriculum were

- being easy to understand and applied as well as
- matching the concepts of real-world and generated sounds.

The next paragraphs look at the following terms in relation to the EARS II curriculum:

- Listening Strategy
- Source Recognition and Source Bonding
- Referential Listening
- Reduced Listening and
- Acousmatic.

For the sake of completeness, the Intention/Reception project results and the theory of the 'something to hold on to factors' need to be mentioned here as well as they had a huge influence on the development of the curriculum. Both theories have been introduced in chapter 1.

Listening Strategy

Different ways of working with sounds demand different listening strategies. Teachers as well as learners should be aware of these listening strategies. The following terms and theories have been vital for the development of the curriculum:

Source Recognition and Source Bonding

Source Recognition and *Source Bonding* are concepts inexperienced listeners are familiar with, but not *aware* of. Especially when listening to sounds for the first time, participants were responding to the sounds by mentioning the source. Two full lessons were needed until most of the participants were able to differentiate sound and sound source, one of the vital elements of the listening training.

Referential Listening

Referential listening is understood as a “natural way” of listening to sounds and is seen as the opposite to reduced listening (see EARS website definition http://www.ears.dmu.ac.uk/spip.php?rubrique1471_01/11/11). Being linked to soundscapes and sound walks, referential listening was introduced first in the classroom.

Reduced Listening

Pierre Schaeffer’s theory of *reduced listening* is crucial when teaching *musique concrète*. His pedagogical listening concept (*Solfège de l’objet sonore* (solfège of sound objects)), however, is much too advanced for teaching to inexperienced listeners. For being able to distinguish between matter and shape the listener needs to be able to recognise the *objet sonore* itself. Hence, to be able to differentiate between sound and sound source was the first step into the listening training that introduced the technique of reduced listening to the participants. By listening to looped real-world sounds, the participants learned to listen out for pitch, rhythm, duration and timbre. The training was successful: around half of the participants stated that the second lesson, in which the listening training took place, changed their listening experience. (For more information see chapter 7.3.) Participants repeatedly reported informally after lessons that they still heard pitches and rhythms of the sounds around them after they had left the classroom and that they tried it out at home, as they were fascinated by it.

In the classroom reduced listening was introduced as an artificial listening strategy. To distinguish reduced listening from referential listening both were

compared in the situation of facing a lion. Listening to rhythm, pitch, duration and the timbre of the lion's roar would most likely end in being eaten by the lion, while referential listening would give the information "This is a lion, this means danger, I'd better run". This example also helped to understand the concept of source-bonding.

Acousmatic

The concept of acousmatic music, listening and performances relates especially to the underlying aims of the curriculum. One of the main aims of the curriculum is to teach inexperienced listeners to be able to appreciate (in all meanings of the word) acousmatic music.¹⁶ In the curriculum itself the concept is mentioned and explained, however there is not a big emphasis on the concept. More emphasis has been laid on the precondition for the acousmatic effect – the separation of sound and sound source.

Nevertheless, this concept is crucial for electroacoustic music. The confusion of the inexperienced listener – who is unwittingly familiar with the way of acousmatic listening through listening to music over headphones from an mp3 player – starts in the concert situation: the general expectation of a concert is not fulfilled by being confronted with a concert stage full of loudspeakers instead of musicians. The curriculum deals with this problem in a teaching unit called "music without musicians".

2.2.4 C) Modes of Discourse, Analysis, and Representation

Two elements from this section are relevant for the EARS II curriculum.

a) Aural Analysis and

b) The use of graphical representation of sounds as educational tool.

¹⁶ However, it was not exclusively aimed at acousmatic music.

a) Aural Analysis

Aural analysis is the only method of analysis that has been applied in the curriculum. According to Tsabary not much research has been done on listening training and aural skills in connection with electroacoustic music (Tsabary 2009, 307). In addition Landy states “[...] the inevitable question follows: will there ever be a foundational musicianship course (or, in Schaeffer's terms, solfège) of sound-based music? I do think so, but not necessarily in the singular” (Landy 2007a, 230).

Landy describes aural analysis as follows:

“*Aural analysis* on the EARS site is not solely the discovery of salient details of a piece through listening. It is an interdisciplinary area ranging from the psychoacoustic notion of an acoustic model to more semantics-based processes that occur during semantic listening” (Landy 2007a, 200-201).

In the EARS II (P) curriculum aural analysis was needed for listening to sounds in the listening training, in quizzes and listening tasks as well as during the composition tasks. Further, it was used for analysing pieces (either excerpts or full pieces), especially during the listening response test which is described in chapter 7.3. Aural skills were fostered through a listening training. The listening training provides the basis for learning to analyse music just by listening. It focused especially on the awareness of sounds and the different listening strategies, introduced in the previous section.

b) The use of graphical representation for sound as an educational tool

Landy states: “To support their work a few authors specializing in aural analysis also use neutral spectral analysis information; they may also use other, perhaps more subjective forms of visual representation for support” (2007a, 201).

Anna-Marie Higgins, who has carried out a number of school projects related to *musique concrète* and composition and who is currently studying for a PhD at Cambridge University, uses the waveform to scaffold the listening experience for her pupils. Following music alongside it is possible, but the problem is that it

is not an accurate representation of the type of sound, the timbre and the actual sound itself.¹⁷

Landy says the same about sonograms, which “are undoubtedly very useful images when used in analysis, particularly when dealing with complex spectra found in some sound-based compositions. The issue to be raised here is: can we hear everything that we see in these images?” (Landy 2007a, 203).

Although it has been outlined above that the waveform and/or sonogram are not ideal for analysing the sounds, these representations have found their way onto the current prototype of the EARS II Environment. This has to do with the way sound was embedded into the system, which has been done using Soundcloud. Soundcloud uses the waveform to allow other users to tag comments to a certain point in a piece. Although the comments function could be deactivated, the inclusion of the waveform was unavoidable.

In the case studies the participants were asked to listen to pieces and to note down their immediate responses to them without seeing any graphical representation of the sound. This way, their attention was focused on the sound and they could discuss and remember the piece with the help of their notes. The results of this are discussed in chapter 7.3.

Visual representation is a learning unit in the EARS II curriculum. It has been classified as an advanced topic as it was not necessary for teaching the basic understanding of sounds. Therefore it has not been tested with participants.

¹⁷ Higgins was aware of this problem, but for her purposes using the waveform was useful.

2.3 Pedagogical Projects for Children with Emphasis on Contemporary Music, Electroacoustic Music or Listening

EARS II is not the first and only project aiming to familiarise school students with electroacoustic music. The following section introduces relevant projects, mainly in the UK, but also in Germany, Finland, Canada, the USA and New Zealand, although the search was not limited to these countries. Most projects identified do not focus on electroacoustic music. Projects of musical outreach programmes, which deliver a good deal of the current music pedagogy programmes outside schools, introduce contemporary classical music (if focussing on the 20th/21st century).

So, this selection is not a representative selection, but a list of projects which could be found with relevance to the EARS II project. There might be more projects, run by committed teachers or community artists which are not documented and therefore could not be taken into account.

The list is sorted by projects which are:

- 1 based in schools, including online projects
- 2 take place outside of schools run by networks and organisations and
- 3 other projects not fitting in the categories above.

2.3.1 Projects based in schools

Sonic Postcards Project

The Sonic Postcards Project is a project by 'Sound and Music', which includes what was formerly 'Sonic Arts Network'. Aiming at school classes or any group of children it invites the participants to create soundscapes of their city. With the help of the Sonic Postcards website these 'postcards' can be published online, including the recorded and edited soundscapes, some comments by the group

and some pictures of the recording process. The website allows also other groups to access different soundscapes.

This project focuses clearly on real-world sounds only. It does not aim to teach the history of electroacoustic music or soundscapes. Nor does it introduce other composers, a repertoire of soundscape compositions or other composition techniques. However, because of this practical approach this project has advantages. For example, it is a straightforward way to spark and retain interest within a group; comments on the website show that many pupils enjoyed their task very much. The two following quotations show how much impact this project can have on pupils (and teachers):

“I am aware of quieter, more unusual sounds especially natural ones. I think I have learnt to listen more closely to sounds around me.” Pupil, Ashcott Primary School, Somerset.

“I learned that many of our pupils have hidden talents and felt there was some real successes which built their self esteem to a higher level than previously.” Barry Ryan – ICT and DT Year 7 Teacher, Moatbridge School, Eltham, London. (both quotations from: <http://sonicpostcards.org/project-info/quotes>)

More on the Sonic Postcards Project can be found on their website: <http://sonicpostcards.org/> (18/03/2011)

Minute of Listening

Minute of Listening is an initiative of Sound and Music. Schools in the UK encourage their pupils to listen for 60 seconds a day. Each day another sound is introduced. Although this initiative does not teach directly about electroacoustic music, it teaches basic listening skills which are a very important point of departure on the journey of discovering electroacoustic music.

<http://soundandmusic.org/projects/minute-listening> (17/03/2011)

Lovelace Project

The Lovelace Project was organised by the University of Michigan in collaboration with schools in order to

“bolster self-esteem, nurture creativity, improve analytical skills, and promote self-discipline through music technology; to increase the number of school-aged females exploring music technology; and to encourage a gender-balanced repertoire” (Simoni 2003, p. 57).

The project presents itself as a school-based curriculum for music technology. However, instead of being integrated in the regular school curriculum the work on this project has been isolated into a “summer camp”. The stated aims of this project meet the general problems of current music technology education (outlined in chapter 2.4) and the teaching method of collaborative learning has been found important for EARS II as well. However, the content of the curriculum could not be fully investigated.

Project Compose

Another project, which is interesting in this context, is described in Bolton 2008.

The project Compose aims to “bring about some change to the current low level of upper primary classroom composition activity in New Zealand”. Using suitable Music Technology it addresses

“three identified barriers to classroom composition [...] the lack of confidence and competence of many classroom generalist teachers to deliver music programmes, the low Government priority for the provision of specialist music teachers in primary schools, and a lack of allocated time for music education in the school programme” (Bolton 2008, 43-44).

The project aimed at working collaboratively on a composition task: to compose pieces based on the characters of a children’s book of New Zealand’s. The final outcome included a CD containing several character compositions which was sent to the school after the project.

Although initially based in a classroom, the programme is delivered with the help of a music specialist/composer, with a general teacher and their students using an asynchronous learning environment. That means that carrying out tasks and learning processes can take place at any time and do not require the whole class to be in the same room (or in the same online space) at the same time. A specialist mentors students online, and the teacher facilitates the project in the classroom mainly by “managing access to computers”. Learning and teaching takes place by using “a specialist-designed learning programme” and Garageband.

Bolton describes further:

“Web-based interaction occurs through two ‘vehicles’. One is the iDisk Apple server storage where students place their completed *Garageband* files in a folder accessed by all Compose participants. The other is *Learn OnLine*, an asynchronous, e-learning platform where students and teachers are grouped like a class with communication between all participants fully supported” (Bolton 2008, 43, italics in original).

Quoting Bransford et al (2000) Bolton explains that the establishment of a ‘learner-centred’ environment is very important to the project:

“[...] such an environment pays ‘careful attention to the knowledge, skills, attitudes and beliefs that learners bring to the educational setting’ (2000:133), Compose is intentionally based around the use of computer-based software and web-based learning as a way to connect with students’ own pre-established propensity, toward working with such digital technologies” (Bolton 2008, 43-44).

The learner-centred focus means that students are allowed to work at their own pace “on open-ended, creative tasks, nurtured by a personalised, online mentoring relationship.” Additionally individual feedback is offered which intends “to potentially develop self-esteem, motivation and commitment to composition learning” (Bolton 2008, 44).

The project Compose contains five lessons:

Lesson one: An introduction to Garageband, while composing one piece (with the help of a written worksheet).

Lessons two to five: Aim to enhance the “participant’s knowledge and use of both the elements of music (beat, rhythm, tempo, pitch, timbre, dynamics) and compositional devices (such as motif, sequence, structure, texture)” in order to complete “short, open-ended compositional tasks”. Methodologically, spoken explanations, audio examples, and written worksheets are used.

Instead of focusing on the introduction of electroacoustic music, as EARS II strives for, the project Compose clearly focuses on composition only. As outlined above, the aim is to enhance the composition lesson in primary schools (which means it also focuses on a younger age group). Hence, the project does not introduce history and genres of electroacoustic music as the EARS II (P) curriculum does. Another distinction from EARS II (P) is the inclusion of e-learning, which allows feedback to be given to the participants over the web.

The EARS II (P) curriculum relies on synchronous, classroom-based teaching including regular and constructive feedback by teachers and peers. (Although it offers limited possibilities for an asynchronous e-learning environment, as shown in the previous section. See also chapters 4 and 5 for more information.)

The content of the EARS II (P) curriculum is more complex than the content of the project Compose. It introduces a broader variety of electroacoustic music, looking at it from different angles. However, the EARS II (P) curriculum could be used to enhance projects such as this. Once started on such a composition task based project, it would be ideal to fill those gaps with EARS II (P) curriculum.

Sound.son – an international exchange through music and technology in education

This is a collaborative music project with a level of intercultural exchange directed by Andrea Cohen and Wiska Radkiewicz. It focuses on the perception of soundscapes of different cities and collaborative composition.

The project is based on the following principles:

Two or more groups of school students from different cities/countries record environmental sounds and exchange them over the Internet. The exchanged sounds are used to compose musical segments or full-scale collaborative pieces, depending on the aim of the particular project.

Sound.son has taken place in many different towns and countries, for example in Leicester and Lansargues, New York (Columbia University) and Vitry-sur-Seine, in different cities of Europe and of Buenos Aires State.

What this project does not do (and does not aim for!) is to introduce different ways of making music with sounds, such as *musique concrète* offers. Focusing solely on a practical approach, knowledge of electroacoustic music is only delivered to an extent which is absolutely necessary to carry out the project.

However, this project shows how valuable sound exchange culturally can be. The groups involved in the projects not only exchanged sounds, but also discussed their results over Skype, so real (although on a technological

mediated level) exchange has taken place. Further, it is to highlight positively that this project focuses on the sounds rather than on the technical procedure of recording the sounds. Technology is not used for 'technology's sake' which is a principle that matches the approach of the EARS II (P) curriculum as well.

More information on Sound.son can be found on their website:
<http://music.columbia.edu/soundson/>

2.3.2 Projects outside of schools run by networks and organisations

Netzwerk Junge Ohren

A major music outreach network for the young in German speaking countries is the *Netzwerk Junge Ohren* (NJO), which translates as Network Young Ears. It offers a network for different outreach projects, starting from outreach from concert halls and opera houses up to private initiatives. Once a year they award the *Junge Ohren Preis* (Young Ears Award), a prize for creative ways of introducing music to the young.

This network seems to work well, however, the main focus is on orchestral and operatic music. Only very few projects deal with electroacoustic music.

One of these is the programme:

Dr. Sound of the concert house *Elbphilharmonie* Hamburg. The outreach-programme of the *Elbphilharmonie* focuses mainly on school concerts in order to familiarise young listeners with classical music. Since 2009 these concerts feature the fictional character of Dr. Sound. 2011 it received an award at the renowned German competition *Land der Ideen. Deutschland* (Country of ideas. Germany).

Dr. Sound collects sounds 'in paper bags' (when opened the sounds are played over the sound system) and investigates which sounds he can find on the stage in a comical way (wearing a stethoscope and trying this out on all objects and people he can find) while the moderator tries to explain other music. According

to the promotional video of the Dr. Sound project (vimeo.com/1445774602/11/11) the sounds have been collected by pupils in previous projects. However, it is not clear if these pupils will be working further with these sounds and/or if the Dr. Sound concert is, then, for the same group (which means that each school class would listen to their own sounds). This way, pupils are familiarised with sounds while having a personal experience in recording and also fun while listening back to the recorded sounds. As far as it is possible to tell from the website of the *Elbphilharmonie*, the school students are only recording sounds. Composition, which would take the programme a step further, is not introduced.

The other project associated with the NJO is called

Ohrenhoch, der Geräuschladen (Listen up, the sound shop).

This project features a 'school' for electroacoustic music, including a concert space, courses on the background of electroacoustic music as well as composition projects. It is based in Berlin and especially addresses children with no previous musical education. Courses range from DJing to DIY instrument building. Every Sunday there are free concerts with changing programmes presenting pieces by composers from all over the world. Of all projects described in this section this is the one which seems to be most relevant for the EARS II (P) curriculum. It not only combines understanding, listening and making, but also tries through teaching to excite young people about electroacoustic music. 2010 *Ohrenhoch* won the *Junge Ohren Preis* of the NJO. However, the disadvantage of this project is that it is based locally in a town and that the knowledge is held only by the specialists who work there. Hence only local students can attend courses and concerts. In creating a resource which allows teachers to distribute this knowledge and also allows students to learn on their own, EARS II (P) offers these possibilities to a wider group.

<http://www.ohrenhoch.org/en.html> (20/04/12)

2.3.3 Other Projects

Handbook for Acoustic Ecology (Barry Truax)

This project has been important and highly influential in the history of the development of EARS I and EARS II. Functioning as a reference book, the *Handbook for Acoustic Ecology* by Barry Truax (<http://www.sfu.ca/sonic-studio/handbook/>) (first edition 1977, second 1999) is a website, which defines important terms related to soundscape and acoustic ecology. This pioneer project started as a CD ROM, but was soon converted into a website, which functions as knowledge repository. The aim stated in the introduction of the first edition of the Handbook is to introduce the reader to soundscape music. Words they know from their everyday life in connection with sound (for example background and foreground) are used in order to bring the genre of soundscape closer to the public (<http://www.sfu.ca/sonic-studio/handbook/Intro1.html> 02/02/11). It, therefore, focuses mainly on soundscape music and acoustics. The information given is sorted into different clusters. Many of the terms have been incorporated into the EARS I definitions.

The *Handbook* fulfils its own aims, therefore the following sentences should not be read as a critique, but rather as a list of limitations which every project has. The first edition of this handbook is dated 1977, the current 1999. As the development of electroacoustic music is quite fast, no handbook can aim to catch up with all current developments but instead gives a snapshot of the time when it was written. The information focuses mainly on soundscape and related topics (such as acoustics), however due to its age, it does not necessarily meet the current state of research. The handbook offers listening examples but not the possibility to listen to full pieces. In contrast to the EARS II (P) curriculum the Handbook is not aimed at children or inexperienced users. This explains why the website mainly functions as a book including audio examples. It does not (and probably does not need to for its purpose) make use of any of today's standards for web design (see for example Krug 2000). No didactical structure apart from categorised information can be found, so the user must have a strong intrinsic motivation to learn about soundscape.

RjDj and Kids on DSP

RjDj stands for the Reality Jockey Ltd. and is a London-based music network for “music [...] produced, distributed and listened to in a whole new format: SOFTWARE” (RjDj website). These software songs are called scenes. Scenes are designed for different purposes:

- To sing along and record yourself with real-time effects on the voice
- As games
- As instruments
- Or to open ‘the world of augmented music’ intertwining with sounds from the environment through sensors. (RjDj website)

This programming relates strongly to the music industry, also brands are addressed by the offer to do programming especially for them. Nevertheless, it describes itself as an open company (RjDj website) featuring a social network to bring together musicians and developers and being based on PD, an open-source program. Some of these applications could be used in schools and workshops and would enhance not only the knowledge about technology, but could also take away possible fear of technology.

<http://www.rjdj.me/music/Kids%20on%20DSP/>

DSP02

Another program worth mentioning is the composition and audio processing software for children developed by Jøran Rudi of NOTAM. This is platform independent software that allows mixing sound editing and audio processing. The program can be used in classrooms and workshops; the website, on which the program is delivered, offers also user guides, tutorials, music examples and assignments. (See <http://www.notam02.no/web/1997/07/dsp2-2/?lang=en,02/02/11>)

The program is very intuitive: It follows a clear structure and is therefore suitable for children. It is not only a composition program for children; it also offers additive synthesis for children which is unique. However, Audacity was chosen over DSP02 in the tests run with the EARS II (P) curriculum as this offers more options regarding sound manipulation.

2.4 Music, Technology and Teaching

2.4.1 Introduction

The literature introduced in this overview¹⁸ deals with the use of ICT in the music classroom largely related to secondary education. It is noticeable that this literature focuses mainly on the aspect of technology being used for teaching instead of teaching music with the help of technology. It can be argued that the literature focuses too much on the actual use of technology. Much more interesting - especially in the context of this PhD project - would be to discuss the potential change technology can bring for the teaching of music as well as the understanding of music itself.

The following discussion highlights the advantages of teaching music with the help of technology. It also focuses on problems which can be observed in current music technology teaching practices. The final paragraph shows how this all relates to this PhD project.

2.4.2 Advantages of using technology in the music classroom

Enhancement of musical learning

“But the relationship between music and ICT is not one of servant and master, but rather a subtle, reciprocal and perhaps empathetic one in which the very nature of what constitutes musical practice is challenged, mediated and redefined through performers’ and composers’ uses of ICT. Ultimately, given a conceptual grasp of this alternative perspective, it could lead pupils and teachers to engage with and organise sounds in new ways, challenging the very nature of music itself at a fundamental level” (Savage 2005, 168).

The authors agree that the use of ICT has the possibility to enhance learning in the classroom (Savage 2005, Bolton 2008, Cain 2004, Burnard 2007). Studies

¹⁸ This literature review covers literature that has been published up to the middle of 2010, when this chapter was completed.

have shown that technology “provides an enabling environment in which learners and teachers enter a co-participate process around activities and explorations” (Challis 2007 in Burnard 2007, 39). These studies embrace research in collaborative creativity using music technologies (Dillon 2003, 2004) as well as composing with MIDI from a student’s perspective (Airy and Parr 2001), and web-enhanced learning (Bauer 2001). (For a broader overview see Burnard 2007)

Music Technology provides different access to sound and composition

The use of Music Technology enables students to compose music without prior knowledge of notation or being able to play an instrument. It further supports the compositional process in a more engaging way than pen and paper composition is able to:

In his literature review Bolton (2008) stresses that “music software can make composition more accessible for young people” (referring to articles by Hickey 1997, Webster 1998, Stauffer 2001, Reynolds 2002, Jennings 2003, Ho 2004) as well as “that prior performance or notation skills are not necessarily indicative of software-based compositional achievement” (referring to an article by Seddon and O’Neill 2001). (Bolton 2008, 41-42)

In other words: While studying an instrument can take up to decades before mastering the instrument, the learning of a music software can take much less time. But although this argument sounds coherent, more aspects have to be taken into account. Of course it is possible to create a piece of music with the help of software in short time. However, in music education literature there seems to be a lack of discussion about virtuosity in the use of programs as well as the necessary musical understanding and the ability to listen to and to appreciate electroacoustic music. This PhD project addresses basic musical understanding and the training of listening skills in relation to electroacoustic music. Focusing on inexperienced listeners, topics such as virtuosity will not be discussed. Still, a solid musical education (regardless of whether it is with instruments or technology) is the prerequisite for reaching virtuosity. In relation

to inexperienced learners, however, this is a relevant argument, as it keeps learners focused.

Bolton goes on to tell the story of Josh (a pseudonym), a boy who showed imminent behavioural problems and followed the normal lessons with difficulty. He took part in the project Compose, which has been described in greater detail in the previous section 2.3, which was an online learning project based in the classroom, but which allowed students to access it in their own time, for example during lunch breaks and in the evening. Josh succeeded during this project surprisingly well and soon overtook all of his classmates. Although Bolton is aware of the fact that this is a single example and cannot speak for a general perception of teaching with technology, it shows how much potential teaching with technologies can have.

This indicates that technology also bears the potential to reach students for whom the traditional way of teaching is not suitable. A vast number of studies and projects related to special needs and technology have been carried out in recent years. Worthy of mention here are projects such as Drake Music Scotland, which is using technology in order to allow people with multiple disabilities to make music (<http://www.drakemusicscotland.org/about/>, 27/10/11) and the invention and creative use of the Sound Beam and the Skoog (and multiple other projects and inventions).

ICT provides another form of scaffolding

Moreover, using technology has the potential to keep the focus of the pupils. Or as Savage puts it:

“Music technologies allowed pupils to generate many sound ideas fairly rapidly. [...] the ease of access into sound ‘worlds’ and the manipulative and transformational power of ICT allows for these ideas to be quickly developed and realised.” Furthermore, Savage stresses that, “the changing technological environment does not alter the nature of invention or the need to cultivate our pupils’ creative imaginations. Invention, in this sense, is something over which teachers have little control; the creative imagination can be nurtured and developed through careful supervision and sensitive guidance through the composing process” (Savage 2005, 173).

This means that students receive a direct response to their action (in opposition to pen and paper tasks). Although in a different context, this approach has been

accurately described as WYHIWYG (=What you hear is what you get) by Feist (2008).

Nevertheless, what is good for some can be frightening for others: Working with technology can be alarming for technophobic students or teachers. However, dealing with the fear of technology throws up a problem which goes beyond the scope of this PhD.

So, if the music education literature introduced above praises the use of ICT in classroom based music teaching, why has the use of ICT still not entered all music classrooms in the UK?

2.4.3 Problems of using technology in the music classroom

There are problems which come with using technology. These problems can be related to either the user, the learning instructor (in most cases the teacher) or the general settings (such as the “red tape” of institutions etc.) and also the technology itself.

Problem 1. Lack of a conceptual framework

Burnard argues that there is a lack of conceptual frameworks “for investigating the multifaceted nature of creativity and technology” (Burnard 2007, 39). This lack of a conceptual framework manifests itself on two levels: the lack of a curriculum that can be used in schools and the lack of knowledge about the subject itself.

Lack of curriculum

Burnard asks the question “What role does the curriculum play in the complementary recasting of home and school use of music technology?” (Burnard 2007, 40) Answering this question during this thesis will not be possible, however I will assume that the availability of a curriculum plays a major role in decisions regarding teaching content.

As shown at the beginning of this chapter, despite an international search the projects related to electroacoustic music and education that were found specialise on one particular genre or aspect of electroacoustic music. In this connection Burnard quotes Hennessy et al (2005, 156) “In practice [...] ‘the research literature offers little support for the popular (though perhaps unrealistic) rhetoric about technology revolutionizing teaching and learning or teachers fundamentally reworking their lesson plans and pedagogy’” (Burnard 2007, 38).

Later in her paper she states “Yet, if it is possible for teachers to radically change how they teach, then coming to new understandings of how creativity and technology can mediate the learning environment as creative spaces in which pupils (and teachers) learn collaboratively, is crucial.” (Burnard 2007, 41)

This leads to the next point that needs to be discussed, the

Lack of knowledge among teachers

One problem is that when introducing technology to the classroom, teachers were left alone with teaching new technologies as Stollery and Byrne outline in their paper “Where do we go from here?”:

“In Scotland, the introduction of Standard Grade Music in 1988 (Scottish Examination Board, 1988) had implications for the use of new technology in the delivery of the new course but teachers were left very much to their own devices with regard to level of resourcing, standards of equipment, software etc., and methodologies and approaches” (Stollery and Byrne 2000).

It is not the aim to criticise or belittle any teachers in this section. There are teachers who provide excellent teaching, keep up to date with current development in technology and have a positive impact on the education of pupils. However, there are also teachers who did not have the chance to learn the use of technology during their teacher training. If those teachers do not happen to be computer literate it can become difficult for them to keep up with the fast development of technology. Therefore it is important

“[...] to foster innovative and effective teacher research and resist the current trend towards the domination of curriculum and pedagogy by ‘technical standards’ based on ‘expert research’ and imposed in a ‘top-down’ manner by educational administrators and policy makers” (Burnard 2007, 50).

Teachers as technicians

With the introduction of technology in the classroom, the role of the teacher has changed rapidly. Although some music teachers are passionate about teaching with the help of technology, other teachers do not feel confident enough to use ICT (Cain 2004). The role of the teacher shifts from being “just” the teacher to also taking on the role of technician.

“New technologies have also meant changes to teaching styles and the role of the teacher. Before the ‘creative music’ developments, whole-class teaching seems to have been the norm, and Paynter’s work was influential in effecting a shift in emphasis to group work. Now, more and more, pupils are working either in pairs or as individuals, each with a workstation and a set of headphones. This demands a different approach to teaching, and also requires teachers to be technicians, performing ‘regular maintenance and careful management of resources’.” (Odam and Paterson 2000, 35, referenced after Cain 2004, 216-217).

Cain suggests that “an adequate, overarching theory of music education that takes account of new technologies could help to locate music technology within the curriculum as a whole” (Cain 2004, 218).

In similar vein, Ferreira (2007) mentions the problem of demanding too much of music teachers. Ferreira states that “despite the multiplicity of ways in which ‘music technology’ can be conceptualized and categorized in disciplinary terms, both the development *and* the use of technologies for musical applications require [...] knowledge of core topics traditionally located across disciplinary boundaries” (Ferreira 2007, 24, italics in original). And this is not necessarily given by music teachers.

Problem 2. Technology not used to its full potential

Although the use of technology is part of the National Curriculum in England (see National Curriculum) and Scotland (see Stollery and McPhee 2002) technology is still not used to its full potential, which is due to the fact that teachers can be overwhelmed with their new role as technician. The time it takes to understand new music software in full depth and to devise a good lesson plan for optimal learning effect is quite simply not available. If there were

a curriculum that would provide the teacher with ideas, creative tasks and the necessary technical information, this would change the situation.

Facilities at schools

Furthermore, the use of technology requires the availability of facilities which can often be problematic. Especially in smaller schools, there are often not enough computers and software may be outdated. Those kinds of conditions make it more difficult to use technology effectively. Not to have functional equipment can also be demotivating for a teacher who would like to integrate technology into their lessons.¹⁹ Often this simply relates to cost of the technology itself as well as the cost of employing a person who is responsible for it.

The results of the papers discussed above allow the conclusion that changes need to be made regarding educational and practical methods related to teaching music with the help of technology.

Burnard suggests taking the opinions of the pupils more into account. She says:

“Consulting pupils (i.e. giving learners a critical and democratic or genuine say) about the acquisition of technologies, how to use new learning technologies and opportunities to create their own learning technologies. These may be different kinds of technological spaces that enhance collaborative and personal creativity” (Burnard 2007, 48).

But there need to be changes on other levels as well.

A stronger focus should be laid on the *creative* work with technology as pointed out in an earlier article.

“On the other hand there is also a strong focus on technology, which is one part of electroacoustic music, but cannot describe the entire music. Although the subject Music Technology that as an A-level subject in the UK (however, it does not even exist in Germany) is a good start to decimate the problem, but this curriculum is not enough to solve the problems described above and again far too focused on technology. (cf. Landy 2007)” (Wolf 2008).

¹⁹ The opposite situation can be observed as well, where schools invest a lot of money in a fully equipped IT suite or recording studio, but do not have anyone who is trained to use it.

Also the lack of a curriculum shows that there is a gap in educational research relating to this topic. This PhD project aims to help to fill in this gap by offering an electroacoustic music curriculum through the medium of an online environment that enables students and teachers to learn about electroacoustic music and composition without any prior instrumental knowledge. It also allows students to engage with sounds in a different way than they are used to through a listening training. Therefore this curriculum features a different support of creativity than normal music (technology) lessons do. It furthermore takes into account the knowledge of the students in order to “pick them up where they are”.

2.5 Summary

This chapter has introduced the general outline of the pedagogical ElectroAcoustic Resource Site project. It has been introduced in the context of its predecessor “The ElectroAcoustic Resource Site”. In order to show where the EARS II (P) research fits in, the field of research for electroacoustic music and pedagogy has been outlined resulting in the musicological framework for the EARS II (P) project. Other projects that introduce electroacoustic music to inexperienced listeners have been introduced. Finally, the general issues coming with teaching music with the help of technology have been introduced stressing especially those areas that are relevant for the EARS II (P) curriculum.

3 to 5 The EARS II Pedagogical Framework

Introduction

“Most people are happy to live out their lives in the light of established knowledge at the bright centre of the beam, but there will always be a few who feel compelled to move away from that comfortable existence. These are the explorers, keen to know what lies beyond the familiar territory, in the shadows at the edge of the beam. In the course of time their discoveries draw others in the same direction: first just a few, then more and more until the new knowledge becomes widely accepted” (Keynote address by John Paynter 2003 conference of the National Association of Music Educators, referenced after Cain 2004, 215).

The investigation of the impact of technology in music lessons is becoming more and more important for music education research (see Mills and Murray 2000, Pitts and Kwami 2002, Savage 2005, Salaviuo 2006, Seddon 2006, Bolton 2008). However, the focus of this discussion is often the technology itself and not the subject which is taught. Savage rightly states:

“Just adopting new pieces of technology in the classroom will not effect any meaningful educational change. There needs to be a wider appreciation of the working practices that accompany such technologies. These can be drawn from a wider consideration of musical practice” (Savage 2005, 178).

As outlined in chapter 2.4, teaching electroacoustic music has more potential than only the teaching of technology. Cain demands a greater understanding of

“[...] what children, including young children, learn from music technology. (Why is it not part of the English National Curriculum for 5-8-year-olds; what is the theory that supports this omission?) There needs to be more, and better, professional development, so that teachers can learn from each other, as well as from experts, how best to use music technology” (Cain 2004, 220).

He states further:

“Curriculum change is necessary if the world of the classroom is to keep pace with the world outside. And it is also necessary to have a clearly defined theory which allows teachers to commit themselves intellectually to the change” (Cain 2004, 219).

So, what is the way to help teachers and students out of this problem? Teaching with the help of ICT and using new technologies in music classrooms is expected from all music teachers. Nevertheless, just because it is stated in the National Curriculum, this does not mean that every teacher will be able to deliver this.

Hence Stollery and McPhee insist that “[...] there needs to be a curriculum which develops a wide variety of metacognitive skills such as experimentation, improvisations, assimilation with the real world, and which fosters motivation” (Stollery and McPhee 2002, 95).

The EARS II (P) curriculum provides such a new approach towards electroacoustic music, featuring the introduction of listening strategies and compositional tasks based on a concept-driven approach of learning about music and the musicology of electroacoustic music. It covers the core musical activities as defined by Swanwick (1979), which are “composing, performing and audience-listening (...), with literature studies and skill development in supporting roles” (Swanwick, referenced after Cain 2004, 217).

As outlined in chapter 2.4 *Music, Technology and Teaching* the situation of teaching electroacoustic music in schools is not ideal at the time of writing this thesis. Furthermore, the differentiation between activities, such as composing, performing and audience-listening seems to be getting harder (Cain 2004). Still, they are as important for this curriculum as they are for any other music curriculum.

“Technological developments have thus called into question what we mean by the terms ‘composing’, ‘performing’ and ‘audience-listening’. Does the term ‘composing’ include manipulating sound samples composed by other people? Does ‘performing’ include entering performance parameters in ‘step time’, before the sounds are heard, rather than as they happen? And how are we to understand recording and mixing tracks – is this simply an extension of ‘audience-listening’? What is the relationship between performer and listener, when the performance is mediated by a computer? [...] Clearly there needs to be some redefining of terms, and an acceptance that the distinctions between terms are more blurred than has previously been thought; but this is only the beginning – the crucial question is ‘To what extent do these activities provide meaningful, educational encounters with music?’” (Cain 2004, 217-18).

Additionally, the EARS II (P) curriculum provides a way to acquire in-depth listening skills, which goes beyond pure audience-listening, as well as ICT skills (such as the use of a sequencer program or working within an e-learning environment).

The following chapters will describe in-depth how the EARS II (P) curriculum was designed. Relevant learning theories (chapter 3) will be discussed, followed by an introduction of the aims and objectives (chapter 4). After that

learning outcomes for the curriculum will be presented, followed by decisions that had to be made regarding the pedagogical design of curriculum and environment. Based on this, a detailed description of the EARS II (P) curriculum will be given in chapters 4 and 5.

3 Learning Theories and Approaches to Learning Design

In this chapter learning theories that have been relevant for the development of the EARS II (P) curriculum will be introduced. It will begin with Bloom's Taxonomy of Learning Objectives, followed by Anderson and Krathwohl's revision of this theory. Following this, the learning circle by David Kolb will be introduced. After a short summary of behaviourism and constructivism, a more detailed introduction of Diana Laurillard's approach to learning will be presented. These theories will be returned to at the end of the chapter in order to show how these theories have been applied to the EARS II (P) curriculum.

3.1 Bloom's Taxonomy of Learning Objectives and Anderson and Krathwohl's Taxonomy for Learning, Teaching and Assessing

Bloom and his team of researchers devised their taxonomy of learning objectives in 1956. The theory distinguishes three learning domains: the cognitive, the affective and the psycho-motor domain. After a short introduction to the cognitive domain, the revision of the taxonomy by Anderson and Krathwohl, which has been important for this research, will be discussed.

Bloom's taxonomy presents a "framework for classifying thinking and learning outcomes" (Moseley et al. 2005, 52) that at the same time reflects the complexity of tasks. The intellectual abilities Bloom outlines in his taxonomy are listed in the table below:

Intellectual abilities and skills		
Evaluation:	Judgements in terms of	Internal evidence External criteria
Synthesis:	Production of	A unique communication A plan
Analysis:	of	A set of abstract notions Elements Organisational principals
Application:		
Comprehension:	Translation from Interpretation Extrapolation	One level of abstraction to another One symbolic form or vice versa One verbal form to another
Knowledge of:	Specifics Ways and means of dealing with specifics The universals and abstracts in a field	Terminology Specific facts Conventions Trends and sequences Classification and categories Criteria Methodology Principles and generalisations Theories and structures

(Moseley et al. 2005, 50)

The taxonomy is “applicable in all contexts of teaching and learning, including non-verbal as well as verbal areas” (Moseley et al. 2005, 53).

Anderson and Krathwohl (2001), who also contributed to the first publication, revised Bloom’s taxonomy. Instead of the original categories “knowledge, comprehension, application, analysis, synthesis and evaluation” Anderson and Krathwohl worked with “six cognitive process categories: remember, understand, apply, analyse, evaluate and create” as summarised by Moseley (Moseley et al. 2005, 103).

Especially interesting for this PhD research is the discussion of the dimensions of knowledge. Anderson and Krathwohl distinguish four main types of knowledge:

- Factual knowledge
- Conceptual knowledge
- Procedural knowledge
- Metacognitive knowledge (see Anderson and Krathwohl 2001, 5).

They take the view that “knowledge is domain specific and contextualized” (Anderson and Krathwohl 2001, 41). This presents a shift from

“[...] passive views of learning toward more cognitive and constructivist perspectives emphasizes what learners **know** (knowledge) and **how they think** (cognitive processes) about what they know as they actively engage in meaningful learning” (Anderson and Krathwohl 2001, 38, text emphasis in original).

They further specify that the term *Factual knowledge* stands for “the knowledge of discrete isolated ‘bits of information’”, while *Conceptual knowledge* comprises “more complex, organised knowledge forms” (Anderson and Krathwohl 2001, 42). By distinguishing the different types of knowledge they outline:

“Whereas *Factual knowledge* and *Conceptual knowledge* represent the “what” of knowledge, procedural knowledge concerns the “how.” In other words, *Procedural knowledge* reflects knowledge of different “processes,” whereas *Factual knowledge* and *Conceptual knowledge* deal with what might be termed “products.” It is important to note that *Procedural knowledge* represents only the knowledge of these procedures; [...]” (Anderson and Krathwohl 2001, 52-53).

Learning is seen as a result of instruction; learning intentions are called objectives. Anderson and Krathwohl state that objectives should be formulated as a combination of verb and noun: “The student will be able to, or learn to, verb noun,’ where the verb indicates the cognitive process and the noun generally indicates the knowledge” (Anderson and Krathwohl 2001, 23, text emphasis in original).

The following two tables show a detailed overview of the “major types and subtypes of the knowledge dimension” as well as the “process categories and cognitive processes” needed for learning.

Major Types and Subtypes	Examples
A. Factual Knowledge – The basic elements students must know to be acquainted with a discipline or solve problems in it	
A a. Knowledge of terminology	Technical vocabulary, musical symbols
A b. Knowledge of specific details and elements	Major natural resources, reliable sources of information
B. Conceptual Knowledge – The interrelationships among the basic elements within a larger structure that enable them to function together	
B a. Knowledge of classifications and categories	Periods of geological time, forms of business ownership
B b. Knowledge of principles and generalizations	Pythagorean theorem, law of supply and demand
B c. Knowledge of theories, models, and structures	Theory of evolution, structure of Congress
C. Procedural Knowledge – How to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods	
C a. Knowledge of subject-specific skills and algorithms	Skills used in painting with watercolors, whole-number division algorithm
C b. Knowledge of subject-specific techniques and methods	Interviewing techniques, scientific method
C c. Knowledge of criteria for determining when to use appropriate procedures	Criteria used to determine when to apply a procedure involving Newton's second law, criteria used to judge the feasibility of using a particular method to estimate business costs
D. Metacognitive knowledge - Knowledge of cognition in general as well as awareness and knowledge of one's own cognition	
D a. Strategic knowledge	Knowledge of outlining as a means of capturing the structure of a unit of subject matter in a textbook, knowledge of the use of heuristics
D b. knowledge about cognitive tasks, including appropriate contextual and conditional knowledge	Knowledge of the types of tests particular teachers administer, of the cognitive demands of different tasks
D c. Self- knowledge	Knowledge that critiquing essays is a personal strength, whereas writing essays is a personal weakness; awareness of one's own knowledge level.

(Anderson and Krathwohl 2001, 29)

Process Categories	Cognitive Processes and Examples
1. Remember – Retrieve relevant knowledge from long-term memory	
1.1 Recognizing	(e.g., Recognize the dates of important events in U.S. history)
1.2 Recalling	(e.g., Recall the dates of important events in U.S. history)
2. Understand – construct meaning from instructional messages, including oral, written, and graphic communication	
2.1 Interpreting	(e.g., Paraphrase important speeches and documents)
2.2 Exemplifying	(e.g., Give examples of various artistic painting styles)
2.3 Classifying	(e.g., Classify observed or described cases of mental disorders)
2.4 Summarizing	(e.g., Write a short summary of the events portrayed on videotapes)
2.5 Inferring	(e.g., In learning a foreign language, infer grammatical principles from examples)
2.6 Comparing	(e.g., Compare historical events to contemporary situations)
2.7 Explaining	(e.g., Explain the causes of important eighteenth-century events in France)
3. Apply – Carry out or use a procedure in a given situation	
3.1 Executing	(e.g., Divide one whole number by another whole number, both with multiple digits)
3.2 Implementing	(e.g., Determine in which situations Newton’s second law is appropriate)
4. Analyze – Break material into constituent parts and determine how parts relate to one another and to an over-all structure or purpose.	
4.1 Differentiating	(e.g., Distinguish between relevant and irrelevant numbers in a mathematical word problem)
4.2 Organizing	(e.g., Structure evidence in a historical description into evidence for and against a particular historical explanation)
4.3 Attributing	(e.g., Determine the point of view of the author of an essay in terms of his or her political perspective)
5. Evaluate – Make judgments based on criteria and standards.	
5.1 Checking	(e.g., Determine whether a scientist’s conclusions follow from observed data)
5.2 Critiquing	(e.g., Judge which of two methods is the best way to solve a given problem)
6. Create – Put elements together to form a coherent or functional whole; reorganize elements into a new pattern	
6.1 Generating	(e.g., Generate hypotheses to account for an observed phenomenon)
6.2 Planning	(e.g., Plan a research paper on a given historical topic)
6.3 Producing	(e.g., Build habitats for certain species for certain purposes)

(Anderson and Krathwohl 2001, 31)

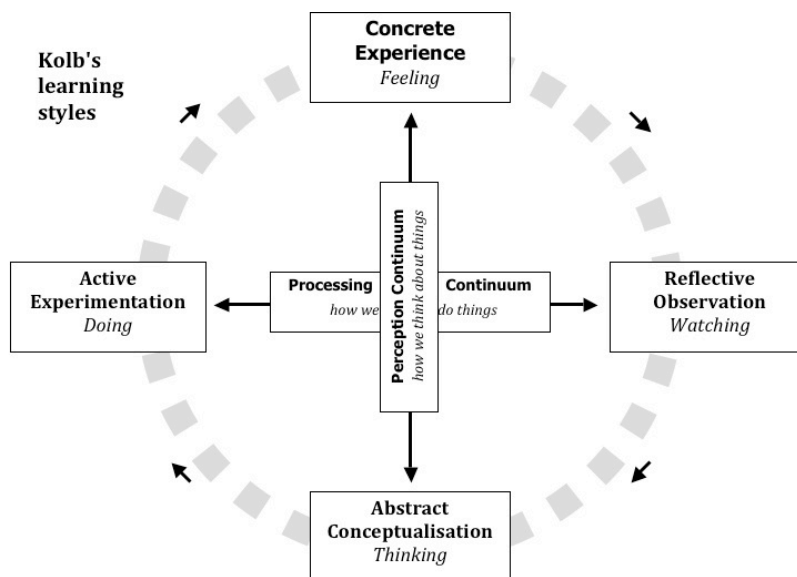
3.2 Learning Circle by Kolb

David Kolb's model of Experiential Learning is widely used in Higher Education and Business Coaching, but can be applied to any learning situation. It is based on the view that learning happens in a continuous process as all learning is re-learning (Kolb 1984, 28).

Kolb distinguishes four learning styles:

- “Divergers’ who perceive information concretely and process it reflectively, needing to be personally involved in the task;
- ‘Convergers’ who perceive information abstractly and process it reflectively, taking detailed, sequential steps;
- ‘Assimilators’ who perceive information abstractly and process it actively, needing to be set pragmatic problem-solving activities;
- ‘Accommodators’ who perceive information concretely and process it actively, taking risks, experimenting and needing flexibility in learning tasks” (Capel *et al* 1999, 246).

According to Kolb, successful learning always happens in four stages: Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualisation (AC) and Active Experimentation (AE) (Kolb 1984, 30). CE is often associated with “feeling”, RO with “watching”, AC with “thinking” and AE with “doing”.



© concept david kolb, adaptation and design alan chapman 2005-06, based on [Kolb's learning styles](#), 1984
Not to be sold or published. More free online training resources are at www.businessballs.com. Sole risk with user.

Figure 1. Kolb's learning circle

As can be seen from the diagram “Learning requires abilities that are polar opposites, and the learner, as a result, must continually choose which set of learning abilities he or she will bring to bear in any specific learning situation” (Kolb 1984, 30).

In order to create a curriculum that enables the learners to learn at their best, it is important to keep the four different stages of learning in mind. This means that it must be possible for the learner to go through these four stages: a learning experience only focussing on Reflective Observation (for example) would not allow a full learning process.

Kolb objects to fixed learning outcomes, although he acknowledges that assessment would be more straightforward following such learning outcomes. He suggests instead: “Experiential learning theory, however, proceeds from a different set of assumptions. Ideas are not fixed and immutable elements of thought but are formed and re-formed through experience” (Kolb 1984, 26). In addition, he rejects the concept of “tabula rasa” and puts forward instead:

“Everyone enters every learning situation with more or less articulate ideas about the topic at hand. [...] It is just that some of our theories are more crude and incorrect than others. But to focus solely on the refinement and validity of these theories misses the point. The important point is that the people we teach have held these beliefs whatever their quality and that until now they have used them whenever the situation called for them” (Kolb 1984, 28).

Kolb summarises at the end of the second chapter of his book:

“Learning is the process whereby knowledge is created through the transformation of experience. This definition emphasizes several critical aspects of the learning process as viewed from the experiential perspective. First is the emphasis on the process of adaptation and learning as opposed to content or outcomes. Second is that knowledge is a transformation process, being continuously created and recreated, not an independent entity to be acquired or transmitted. Third, learning transforms experience in both its objective and subjective forms. Finally, to understand learning, we must understand the nature of knowledge, and vice versa” (Kolb 1984, 38).

3.3 Behaviourism

Behaviourism began with the work of Burrhus Frederic Skinner and Ivan Pavlov. The theory is based on an action-reaction cycle. Depending on the reaction (praise or criticism, positive or negative feedback), the learner understands how to distinguish between 'good' and 'bad' behaviour. By avoiding 'bad' behaviour the learner shows learning success.

This theory has been discussed widely with regard to learning. Valuable conclusions about learning were drawn by Skinner, based on several similar animal and human experiments:

- “(a) Each step in the learning process should be short and should grow out of previously learned behaviour.
- (b) In the early stages, learning should be regularly rewarded and at all stages carefully controlled by a schedule of continuous and/or intermittent reinforcement.
- (c) Reward should follow quickly when the correct response appears. This is referred to as *feedback* and is based on the principle that motivation is enhanced when we are informed of our progress. This is allied to (a) since to ensure a high success rate the steps in the learning process must be sufficiently small and within the capacities of the learner.
- (d) The learner should be given an opportunity to discover stimulus discriminations for the most likely path to success” (Child 1997, 120).

3.4 Constructivism

Another view of learning is presented by constructivist psychology. Constructivists hold the view that the world is constructed by human perception. They understand the process of learning as construction. Constructivism has had strong influence on learning theories and is the diametrically opposed theory to behavioural psychology.

Constructivism is divided into cognitive constructivism and social constructivism: While cognitive constructivism poses questions such as how the individual learner gains understanding, social constructivism examines the ways in which meanings and understandings grow out of social encounter. Thus “[...] knowledge becomes personal and embedded within a context that is relevant to the learner’s own life and experience” (Bates 2005, 56).

Social Constructivism was coined by Vygotsky. His theory is based on the concept that “Human mental activity was the result of cultural learning using social signs” (Child 1997, 205). Learners then “actively construct their individual meaning (or knowledge) as their experiences and interactions with others help develop the theories they hold” (Capel *et al* 1999, 235).

Central to his model of learning is the so-called Zone of Proximal Development (ZPD), which refers to “the gap between what an individual pupil can do alone and what they can achieve with the help and instruction of a more knowledgeable person” (Capel *et al* 1999, 238).

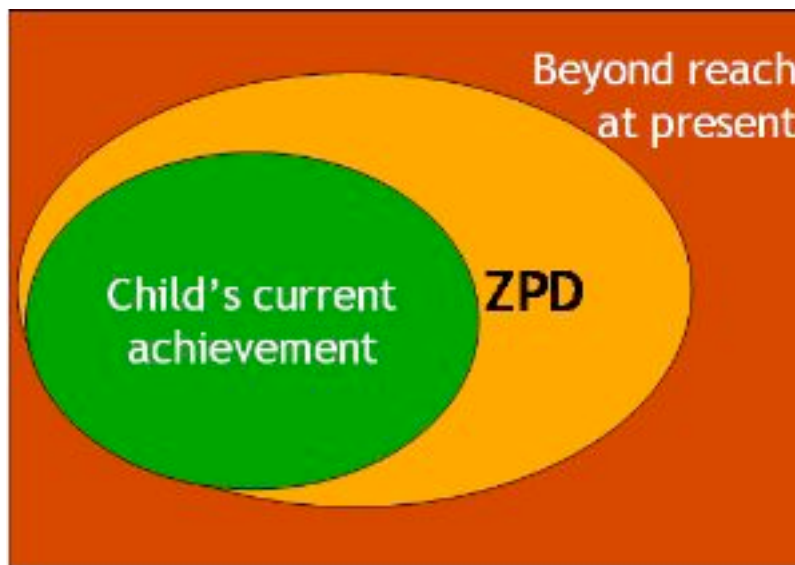


Figure 2. Zone of Proximal Development.

This is a graphic of a model of the ZPD. It shows the area of the child's current achievement is much smaller than that of the ZPD. However, as described above, the child needs help from an adult/more advanced learner to cross the border. The EARS II (P) curriculum can be a way to enhance the ZPD. With the help of a teacher or while working with the EARS II environment the learner can then enhance their current achievement.

Laurillard, who is introduced in more detail in the next section, describes (and criticises) learning according to constructivist psychology as a process of:

- task analysis;
- problem generation from the syllabus content;
- the learning sequence of collaborative and self-directed learning;
- the definition of the facilitator's role as challenger;
- the assessment grounded in the context of the problem" (Laurillard 2002, 67).

Laurillard identifies this as "a useful checklist for a teacher" (ibid.), but outlines that the focus in this case is not on the "student's role, on what they must do to learn". Learning is, in her view, reduced to the task of solving a problem.

3.5 Laurillard's Conversational Framework and Phenomenographic Design

In her book 'Rethinking university teaching' Diana Laurillard introduced a new way of looking at teaching. Although the book focuses on teaching in Higher Education, the basic principles of her theories can be applied to any learning situation. In the first part of her book she introduces her model of the so-called 'conversational framework', which includes the definition of the roles of teachers and learners and their way of communication. In the next part she applies this to teaching with technology. In the following section the conversational framework will be introduced, her views on teaching with technology will be relevant in the following chapter.

Laurillard understands the learning process as an iterative dialogue between teacher and student while being discursive, adaptive, interactive and reflective.

The diagram below shows a model of the 'conversational framework'. It can be seen that the teacher

- communicates concepts to learner via theories and ideas (discursive)
- communicates goals and feedback (discursive, interactive)
- adapts the learning environment according to the learner's actions (adaptive)
- reflects on learner's actions (reflective)

while the student

- discusses concepts with teacher in order to create a mutual understanding of content (which is also part of the teacher's role) (discursive)
- defines specific actions, which need to be reflected and adapted in connection with concept (adaptive, reflective)
- influences by specific actions the learning environment (interactive, adaptive).

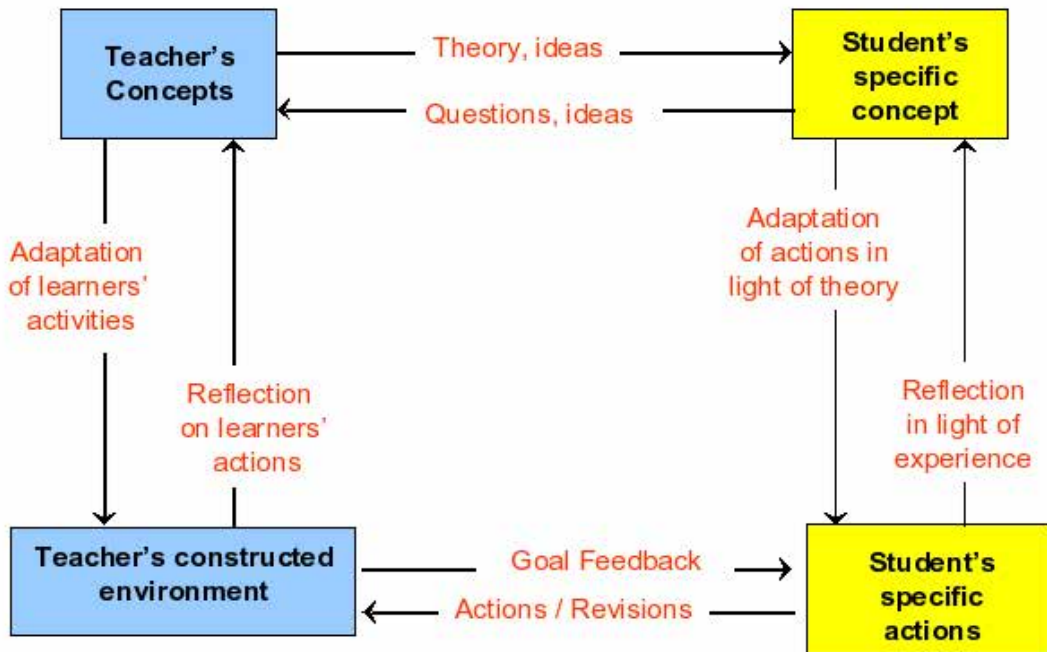


Figure 3. Laurillard's Conversational Framework

Laurillard's prefers a phenomenographical approach, which focuses on learning as discovery instead of hypothesis testing. This methodology is based on findings from qualitative research, which means that

"[...] its output is categories of experience, rather than relational explanations. It cannot aim to be prescriptive in defining the implications of its findings, because it does not define a relationship between aspects of teaching and consequent learning outcomes" (Laurillard 2002, 69).

The methodology provides valuable advice on how to keep the student in mind while not stopping to think about the goals of the learning situation. She quotes Marton and Ramsden (1988) in giving a list of

“[...] six implications for the design of a learning session, which derive from phenomenographic studies.

1 Present the learner with new ways of seeing.

2 Focus on a few critical issues and show how they relate.

3 Integrate substantive and syntactic structures.

4 Make the learners' conceptions explicit to them.

5 Highlight the inconsistencies within and the consequences of learners' conceptions.

6 Create situations where learners centre attention on relevant aspects” (ibid.; Marton, F. and Ramsden, P. (1988) ‘What does it take to improve learning?’ in P. Ramsden (Ed.), *Improving Learning: New Perspectives*, London: Kogan Page.).

This list provides a helpful resource for teachers to improve their practice. However, in order to present the learner with new ways of seeing, it is important to be able to answer the following question in advance: How does the learner acquire new knowledge, so that the method of the presentation of the ‘new way of seeing’ is appropriate? In other words: Which of the learner types described by Kolb in his model and which learning domain of Bloom’s learning taxonomy are addressed? This is also important for the following questions: What is ‘a new way of seeing’ that can be chosen? This throws up the question of what is *the aim* behind showing this ‘new way of seeing’. Laurillard praises phenomenography as “the best hope for a principled way of generating teaching strategy from research outcomes” (ibid, 71):

“The learning process is constituted in the succession of expectations, perceptions, approaches, and outcomes. The approach contrasts with the deterministic box-and-arrows models that abound in psychology, and expresses the learning experience in a more holistic, iterative form. As the learner iterates through the learning sequence, there is an opportunity for development of perceptions and approaches, creating new experiences that become background for the next in the sequence. For this to be possible, the learning process must be designed to elicit awareness of inconsistencies in conception, variation in conception, etc., such as those identified above. This acknowledgment of the necessary iteration between teacher, student and content is more realistic than the cause-effect models of instructional design and cognitivism” (ibid, 70-71).

The phenomenographic approach has had a huge influence on the design of the EARS II (P) curriculum, because in combination with Kolb’s learning cycle and Bloom’s learning taxonomy it can provide a useful approach to teaching and learning as will be outlined below.

3.6 Teaching and Learning Theories for the EARS II (P) curriculum

Although most of the approaches outlined above derive from different, and to some extent opposing, schools of psychology, a detailed look shows that they are not as different as they seem to be. They can co-exist:

Designing a curriculum entails several decisions regarding teaching and learning, which have to be made in advance (see description of ACTION model in chapter 5). Important questions are:

- What are the intended learning outcomes? (Leading to the question: What is going to be taught and why?)
- What are prerequisites the learner needs to bring?
- Who is the learner and what is his/her learning strategy?
- What activities are needed to rehearse/test learning outcomes?
- Which teaching method is most appropriate for this?

These questions offer several possibilities for the design of a course. The following discussion shows how decisions regarding teaching and learning have been made for the design of the EARS II (P) curriculum.

With regards to the question “What are the intended learning outcomes?”, it is important to bear in mind that it is impossible to teach without having an intended learning object in mind. Doing this would result in an unfair learning process for the learner. Ideally, a learning process should be transparent and clear. However if the learner does not know why s/he is spending time on a learning process, it is very likely that the level of motivation will fall quickly.²⁰

In the following sections different aspects of the learning theories introduced above will be discussed in connection with the curriculum design of EARS II (P).

²⁰ Even though intrinsic motivation could avoid this situation and enable the learner also in this situation to gain learning success, it is important to note that in this case the learner has set their own objective.

3.6.1 Anderson and Krathwohl's revised Taxonomy

An important influence regarding the classification of knowledge taught in the curriculum has been Bloom's theory revised by Anderson and Krathwohl. For the EARS II (P) curriculum especially Factual, Conceptual and Procedural knowledge have been relevant. Metacognitive knowledge, although enabling Active Learning which will be introduced below, is not covered by the curriculum. Nevertheless, Metacognitive knowledge is still important for learning with the curriculum. It can be developed and supported by the learning environment (which is reflected well by Laurillard's Conversational Framework), but not by the knowledge presented in this curriculum. The following table shows how the three knowledge dimensions are reflected in the EARS II (P) curriculum:

Major Types and Subtypes	Examples	EARS II (P)
A. Factual Knowledge – The basic elements students must know to be acquainted with a discipline or solve problems in it		
A a. Knowledge of terminology	Technical vocabulary, musical symbols	<ul style="list-style-type: none"> The learner can use musical vocabulary and meanings in the realm of electroacoustic music.
A b. Knowledge of specific details and elements	Major natural resources, reliable sources of information	<ul style="list-style-type: none"> The learner is familiar with a selected body of electroacoustic works. The learner can remember, recognise and recall pitch, rhythm, duration and analyse music and sounds heard. The learner can remember details of the genres soundscape and <i>musique concrète</i> and can define the difference.
B. Conceptual Knowledge – The interrelationships among the basic elements within a larger structure that enable them to function together		
B a. Knowledge of classifications and categories	Periods of geological time, forms of business ownership	<ul style="list-style-type: none"> The learner can differentiate real-world sound from generated sound, as well as reduced listening from referential listening.

B b. Knowledge of principles and generalizations	Pythagorean theorem, law of supply and demand	<ul style="list-style-type: none"> The learner can remember, identify and apply different ways of using sound in music.
B c. Knowledge of theories, models, and structures	Theory of evolution, structure of Congress	<ul style="list-style-type: none"> The learner can remember the principal concepts and key figures of electroacoustic music. The learner can explain the issues in electroacoustic music concerning technology and theoretical discussions (e.g. performance, notation, ...).
C. Procedural Knowledge – How to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods		
C a. Knowledge of subject-specific skills and algorithms	Skills used in painting with watercolors, whole-number division algorithm	<ul style="list-style-type: none"> The learner can run the basic functions of Audacity. The learner has developed an awareness of the sonic environment. The learner can read a graphic representation of sound. The learner can distinguish between different listening strategies and use reduced and referential listening strategy. The learner can analyse a sound for musical parameters.
C b. Knowledge of subject-specific techniques and methods	Interviewing techniques, scientific method	<ul style="list-style-type: none"> The learner can create a composition using sounds by planning the composition, generating the sounds (recording) and producing the composition (compositional process). The learner can record sounds and soundwalks.
C c. Knowledge of criteria for determining when to use appropriate procedures	Criteria used to determine when to apply a procedure involving Newton's second law, criteria used to judge the feasibility of using a particular method to estimate business costs	<ul style="list-style-type: none"> The learner can evaluate which listening strategy to employ. The learner can analyse the main elements of an electroacoustic composition.

Table adapted from Anderson and Krathwohl 2001, 29.

3.6.2 Kolb's Learning Cycle

The EARS II (P) curriculum aims to open the world of electroacoustic music to inexperienced listeners by providing an opportunity to experience electroacoustic music (*Concrete Experience*). It explains how electroacoustic music can be composed and gives background information on existing music, which nurtures *Reflective Observation*. Furthermore, it gives the learners tasks that help develop *Abstract Conceptualisation* and finally features practical tasks such as composition (and role plays in the case studies), which draw on the learning stage of *Active Experimentation*. Hence, the learning needs for different learner types can be accommodated.

3.6.3 Behaviourist Elements

Derived from behaviourist's learning theory according to B. F. Skinner EARS II (P) curriculum and EARS II (P) environment cover the following main parameters of learning:

Short learning processes, which are growing out of previously learned behaviour.

Short learning processes are represented by the EARS II (P) curriculum by its division into individual learning units and tutorials. More information on this structure can be found in the following chapter.

The view that learning should happen in short processes is not shared by Gestalt psychologists, who advocate learning in big chunks to gain an overview of the bigger picture (see Child 1997, 125). However, the danger of material being meaningless, which can occur for example when students are forced to learn a poem line by line (ibid.), does not exist in the case of working with these learning units, as each of the units is designed to be able to stand alone. Furthermore, combined in tutorials, they enable the learner to see a bigger picture of electroacoustic music which makes this critique redundant.

Regular learning reward and careful control of the learning progress in all stages by “continuous and/or intermittent reinforcement” (Child 1997, 120).

First thoughts about how to structure the tutorials included working with different levels of knowledge. This was inspired by computer games, where users cannot go to the next level before completing the previous successfully. However, the idea of a restricted progressing complexity was finally omitted for the following reasons:

a) Learners with prior experience will be frustrated by having first to click through a number of tutorials to get to the tutorial at their learning level. This, obviously, could be avoided by taking an entrance test to guide the learners to their appropriate level, however, having such a test situation is not in accordance with the philosophy of open access learning under which this curriculum operates. Even if the test were designed as a fun quiz to avoid an obvious test situation, it is important to take the learner seriously: As soon as the learner realises that such a quiz is only implemented to check his/her prior knowledge, the test situation is obvious. Moreover, while it would be possible not to disclose the reason for such a test to the learner, this must be avoided: if a fair and open learning atmosphere is to be created, it is very important to be transparent in terms of learning outcomes. This discussion also applies to students without prior knowledge, but with the aim of learning only about a certain topic (which might be on a higher level).

b) Learning does not only happen when there is success. Although learners might not perform well and might not reach the *set* aim, learning will still occur. Learners who struggle on one level might still perform well on another level. This might require different ways of learning. As learning depends on many different factors, it is not always the content which leads to students failing. Factors such as the environment, intrinsic or extrinsic motivation, the relationship with the teacher, the social situation in the learning community and many more, can all influence learning. So the reason for someone not showing success in one area of the curriculum might not be that the learner is not able to understand. Furthermore, going back and repeating a certain part of the

curriculum is always possible, which means that it does not matter at which point each part of the curriculum is completed. Learners will go back if they realise that they have missed out an important part of the learning content, but only if they are motivated and see a reason for going back. However, if a learner is not allowed to skip a level, they might be frustrated and the chances of them putting any energy into the learning process are very low and in the worst case the learning process might be stopped. This refers to Kolb's theory of experiential learning, introduced in chapter 3, as well as to the discussion of generic learning outcomes (see chapter 4).

c) this is also supported by Anderson and Krathwohl: the most important change in connection with the EARS II (P) curriculum is that the new taxonomy does not represent a hierarchy of learning steps, while previously "the learner [could not] move to a higher level without mastering all those below it" (Moseley et al. 2005, 103). However, as Anderson and Krathwohl outline, learning steps are still ordered by increasing complexity (Anderson and Krathwohl 2001, 5).

d) The final reason restrictions on progression were omitted was pointed out by Laurillard 2002 focusing especially on the problems that come with online learning environments:

"[...] it is crucial to allow the student to override the default sequence. This is a user-control medium, and they will wrest that control somehow, to the extent of abandoning the program if it does not give them the freedom appropriate to the medium" (Laurillard 2002, 137).

For these reasons it was decided not to follow the idea of restricted progressing complexity, although the tutorials are still organised in different levels.

The reasons outlined above are not only valid for online learning, but can also be applied to classroom-based learning processes. Learners are in control of their behaviour, for example their attention: if they do not understand the importance of the knowledge dealt within a lesson (i.e. when there is no motivation for them to learn), they have the power to switch off, which is an indirect control of the teacher's behaviour (or lesson planning).

To avoid this, it can be beneficial to have regular learning rewards and careful control of the learning. For the learning environment the EARS figure was

designed, which takes over parts of the role of the external (human) learning instructor and could potentially replace it in the final version of the EARS II development. The task of the figure is to guide the learning, to suggest tasks and routes on the navigation path. The final stage of the development of the EARS II Environment could also contain a system with which user behaviour can be tracked and monitored. So it would be possible either for the teacher using the system in their classroom, or for an external instructor to follow the users' movement within the learning system and monitor whether there have been mistakes or if useful steps have not been completed, in order to inquire as to the reasons for this.

3.6.4 Constructivist Elements

Learning within the tutorials on the other hand is seen as a constructivist process. This is because even if there is a behavioural (re-)action, a constructivist process happens before the reaction, while the reaction itself is just the method of solving the problem.

To solve these problems appropriately, the chosen learning strategy was Active Learning (also known as problem-based and self-regulated learning). According to the theory of Active Learning, students teach themselves with the help of tasks and provided material. This does not mean that there is no teacher present, however the responsibility for the learning is in the hands of the students while the teacher fulfils rather a supporting role instead of following the traditional picture of the teacher as the person holding all knowledge and the student waiting to passively receive it from the teacher.

Active Learning takes place, according to Perry *et al.*, when “learners [...] are metacognitively, motivationally, and strategically engaged in learning [...]” (Perry *et al.* 2008, 97). Following this definition, three elements are important for self-regulated learning: the first is the analysis of the demands of the task, including adaptation and regulation of the learner's behaviour. The second element is the learner's motivation and the third is the strategic planning of methods to fulfil the

task. Active Learning also stands for meaningful and deep learning. According to Susan Capel *et al.* this “occurs when the pupil has some responsibility for the development of the activity” (Capel *et al.* 1999, 250).

Not only practical tasks in the EARS II (P) curriculum, such as the Action Card Game, provide opportunities for active/self-regulated learning. Additionally, the EARS II (P) curriculum includes creative tasks and actions, for which the learners have full responsibility. In test phase 3 different strategies of Active Learning were tested in a real-life scenario. This involved planning how to solve a task to choosing the appropriate method right through to presenting the solution. (The tests will be introduced in more detail in chapter 6 (Methodology) and 7 (Evaluation).) Furthermore, “active learning can also be defined as purposeful interaction with ideas, concepts and phenomena and can involve reading, writing, listening, talking or working with tools, equipment and materials, such as paint, wood, chemicals, etc” (251). In this context composition within the EARS II (P) curriculum can be seen as a way of Active Learning. Even if pupils might have only repeated parrot-fashion what they have learned before, as soon as they start on the creative tasks, the emptiness should be filled with meaning.

As advantages of Active Learning, Capel *et al.* list:

- Greater personal satisfaction,
- More interaction with peers,
- Promotion of shared activity and team work,
- Greater opportunities to work with a range of pupils, and
- Opportunities for all members of the class to contribute and respond (Capel *et al.* 1999, 251).

After which they outline: “It encourages mutual respect and appreciation of the viewpoint of others. Active Learning is supportive of co-operative learning, not competitive learning” (Capel *et al.* 1999, 251).

For the development of the EARS II (P) curriculum learning was not seen as a random process with complete freedom of choice. It includes rather the method of “guided discovery” as Capel describes it:

“Much more common [than discovery learning] is the use of a structured framework in which learning can occur, i.e. guided discovery. However is it the intention of guided discovery that pupils come to some pre-determined conclusion, i.e. the answer is known in advance; or is it the intention that some learning in the topic should take place but that the outcomes vary from pupil to pupil? Guided discovery as a method of teaching is an important component of ‘differentiated learning’ strategies. Guided discovery allows differentiation to be achieved by monitoring the outcome, i.e. the task allows for pupils to get different end points” (Capel *et al.* 1999, 253).

Therefore, Laurillard’s preferred method of phenomenographic design becomes important.

The content of the EARS II (P) curriculum will be presented in clusters of concepts in the belief that if constructivist learning happens with the help of forming concepts, the presentation within concepts will be easier to understand (although it is still the task of the learner to form the concepts.) Guided discovery of the concepts will allow the learner to understand more quickly (see Capel *et al* 1999, 253).

4 Design of EARS II (P) Curriculum and Environment

Following the outline of learning theories and their importance for the EARS II (P) curriculum, this chapter will discuss more details of the design of curriculum and environment. Aims and objectives of the curriculum will be referred to as well as its learning outcomes. This is followed by a discussion of further details of the design. After this the design of the environment will be introduced in more detail.

4.1 EARS II (P) Curriculum

4.1.1 Aims and Objectives

The EARS II (P) curriculum aims to familiarise school students at Key Stage 3 with the body of electroacoustic music. It was developed with the aim of acquainting both teachers and pupils with a fairly unknown type of music in order to help close the gap which there has been between electroacoustic music and society for the greater part of the 20th and 21st centuries. Offering a systematic approach the curriculum aims to introduce knowledge about electroacoustic music in unique clusters. The curriculum not only covers electroacoustic music appreciation but also offers an ‘insider’ experience of the genre electroacoustic music.

Following an active learning approach, this curriculum enables students to work according to their own interests, speed and abilities. Further, teaching creative subjects with the aim of enabling the students to become successful learners can enhance their self-perception and self-esteem. Through new creative tasks and because everyone can begin at the same level, as no previous knowledge is necessary, the students will be enabled to learn about themselves as much as they will learn about electroacoustic music. Thus, the EARS II (P) curriculum agrees with the National Curriculum of England, Wales and Northern Ireland which aims to help young people to become “successful learners who enjoy

learning, make progress and achieve” (National Curriculum 1) by using another way of presenting information and therefore through using another method of learning, which includes both fun and serious learning.

The curriculum has been designed for school students at Key Stage 3. The 11 to 14 age group was chosen for two reasons. Firstly, it has been proven that younger students are more open-minded towards unconventional styles of music (LeBlanc 1996, Kopiez and Lehmann 2008). This finding refers back to the Open-Earedness Hypothesis coined by Hargreaves who “assumed that there are significant age-related changes in the usage of specific response categories [...]” (Kopiez and Lehmann 2008, 122). A number of researchers have investigated this hypothesis. LeBlanc suggests that “(a) younger children are more open-eared, (b) open-earedness declines as the child enters adolescence, (c) open-earedness redevelops as the listener matures from adolescence to young adulthood and (d) open-earedness declines as the listener matures into old age” (Le Blanc 1992 after Kopiez and Lehmann 2008, 122. LeBlanc *et al.* build on these results for their 1996 article). However, Kopiez and Lehmann point out that LeBlanc did “not differentiate between familiar and unfamiliar musical styles. Thus no conclusions on open-earedness in the sense of Hargreaves’ hypothesis can be drawn from their data” (2008, 123). Gembris and Schellberg provided the first evidence in 2003: “The authors found an increase in disliking for classical (unconventional) music from grade 1-4 (7-10 years old) and a constant level of liking for conventional (popular) music” (ibid.).

Kopiez and Lehmann criticised the choice of music and repeated this study using different pieces. Confirming the results by finding an increasing dislike for unconventional music from grades 1-4 (126), they summarised at the end of their article: “[...] we can assume an open-earedness for unconventional music in elementary school even while popular music becomes the favourite musical style at the same age within the idiom of conventional music” (134). This goes well with LeBlanc’s implication for music teaching: “The years of early elementary school, high school, and college present the most favorable

opportunities for the teaching of music listening, as opposed to the years of middle school or junior high” (LeBlanc 1996, 58).

The target group of the EARS II (P) curriculum is the age group 11-14. According to the studies described above, compared to younger learners this target group is not as ideal to work with when teaching unconventional styles of music. However, as the openness to new styles declines the older the participants are, it would be likely that older learners would be even less open to electroacoustic music.

Furthermore, for optimal learning success the learners need to have developed a number of skills, such as being able to deal with active learning, which means that they have to be able to learn independently (self-directed learning). As the case studies of this PhD research show, this is a skill which seems to be developed later than anticipated: the younger the classes were, the less the students seemed to be able to organise their own learning.²¹ In addition to the self-directed learning skills, the students will need to have developed basic ICT skills, starting from simple tasks, such as using a computer, up to more complex tasks, such as learning a new computer program (Audacity). The use of the computer is especially important, because a good deal of the learning can take place online: As outlined previously, the curriculum will be presented in an online learning environment and can be used for e-learning and blended learning.

4.1.2 Learning Outcomes

After the aims and objectives have been introduced the following section will discuss the learning outcomes and how they can be measured.

²¹ However, as there were differences between the different kinds of school as well, this can only be taken as an impression and further research would have to show what the reason for this could be.

In the context of formal education, such as schools or universities, learning impact is measured with the help of Learning Outcomes (see Brown 2007, Watson 2002, Hussey and Smith 2002).

Learning Outcomes are formulated before the learning activity takes place. They are measured by formal assessment, often followed by marks or critical feedback for the students. If the Learning Outcomes are not met in an assessment this can mean one of the following: either the student was not able to solve the learning activity and therefore failed or the learning activity was not designed well.

A learning outcome can be defined as “something that students can do now that they could not do previously” and “can be regarded as changes within a person as a result of a learning experience” (Watson 2002, 208). Furthermore, Learning Outcomes are connected to assessment (Watson 2002, Hussey and Smith 2002, 223).

Brown summarises:

“The essence of a well-formulated learning outcome is that it should be specific, objective and measurable (Bloom *et al* 1956, Mager 1984). That is to say, it should define unambiguously what the learner should be able to do in terms that make it feasible for themselves and others to reliably measure their performance” (Brown 2007).

This is not a problem in formal settings such as classroom learning, however it can become difficult in less formal settings such as learning in museums, galleries and on the web. As the EARS II (P) curriculum was designed to be delivered as a web-based resource, it was crucial to keep in mind that it might not be possible to monitor the learners’ learning outcomes as closely as can be done in a face-to-face learning situation. Although self-assessments have been integrated into the curriculum (for example the action card game and quizzes), formal assessment as carried out in schools cannot be delivered in the web-based version of the curriculum.

Eilean Hooper-Greenhill suggests the concept of Generic Learning Outcomes (GLO). In her article “Measuring Learning Outcomes in Museums, Archives and Libraries: The Learning Impact Research Project (LIRP)” she investigates how

the complex and unpredictable character of learning can be measured (Hooper-Greenhill 2004, 151). In her article she identifies five different GLOs for learning in museums, archives and libraries, which are

“an increase in knowledge and understanding;
an increase in skills;
a change in attitudes or values;
enjoyment, inspiration, creativity;
action, behaviour, progression” (Hooper-Greenhill 2004, 154).

Hooper-Greenhill criticises the concept of Learning Outcomes (Brown calls them predictive learning outcomes) as “undesirable and impractical: undesirable because they restrictively prescribe learner behaviours, and impractical because the visitor will use learning activities in quite unpredictable ways” (Hooper-Greenhill 2004, also cited in Brown 2007). However, Brown argues that if learning outcomes cannot be specified, it will be impossible to measure them (Brown 2007).

Brown does not exclude the possibility that more learning takes place than is intended. However, an intended, predictive learning outcome is needed to allow user-centred course design. Therefore he stresses that designers of curricula (also online curricula) follow a set of predictive learning outcomes.

“GLOs, developed to measure cultural heritage institutional contributions to learning do not measure actual learning, they focus instead on factors that are indirectly associated with learning. Moreover they deliberately eschew standard practice in formal education of specifying ‘predictive’ learning outcomes in favour of measuring open-ended ‘emergent’ learning outcomes. Thus, while they have considerable value as overall institutional performance measures, they do not get to the heart of measuring actual learning and they cannot be used predictively to assess the likely learning effectiveness of any given learning activity” (Brown 2007).

He instead suggests using the conversational framework of Laurillard for creating learning activities. He refers back to her understanding of learning (Laurillard 2002, 82-90), which can be summarised as:

“- *Attending or apprehending* a lesson as a largely passive recipient of information
- *Investigating or exploring* some bounded resource in a more active way where decisions about what to attend to, in what sequence and for how long are managed by the learner.
- Discussing and debating ideas with others
- Experimenting with and practicing skills
- Articulating and expressing ideas through the synthesis of some new product” (Brown 2007).

This corresponds with Laurillard’s media taxonomy of narrative, interactive, communicative, adaptive and productive media (Laurillard 2002, 90; Brown 2007).

Learning experience	Methods/technologies	Media forms
Attending, apprehending	Print, TV, video, DVD	Narrative
Investigating, exploring	Library, CD, DVD, Web resources	Interactive
Discussion, debating	Seminar, online conference	Communicative
Experimenting, practising	Laboratory, field trip, simulation	Adaptive
Articulation, expressing	Essay, product, animation, model	Productive

Laurillard’s Media Taxonomy (Laurillard 2002, 90)

Brown states that:

“Regardless of the content of an activity, we can ask ourselves ‘what kinds of learning experiences do we wish to support with this activity?’ Depending on the answer we can then select one or more media forms from Laurillard’s taxonomy to provide the most appropriate kind of learning experience” (Brown 2007).

The design process of the curriculum followed the approach proposed by Brown. Nevertheless, generic learning outcomes will not be neglected. The learning outcomes that EARS II (P) offers to students have already been shown in the previous chapter in the form of a detailed table. As this was presented with a different focus, the learning outcomes will be printed again below for reasons of consistency. Naturally, not every learner will achieve every outcome. However, it shows the wide range of skills and knowledge which can be gained within the EARS II (P) environment. This list has deliberately been kept very broad, as specific learning outcomes are stated at the beginning of every Learning Object in the printed version of the curriculum.

Factual Knowledge

- The learner can use musical vocabulary and meanings in the realm of electroacoustic music.
- The learner is familiar with a selected body of electroacoustic works. The learner can remember, recognize and recall pitch, rhythm, duration and analyse music and sounds heard. The learner can remember details of the genres soundscape and *musique concrète* and can define the difference.

Conceptual Knowledge

- The learner can differentiate real-world sound from generated sound, as well as reduced listening from referential listening.
- The learner knows different ways of using sound in music.
- The learner can remember the principal concepts and key figures of electroacoustic music.
- The learner can explain the issues in electroacoustic music concerning technology and theoretical discussions (e.g. performance, notation, ...).

Procedural Knowledge

- The learner can run the basic functions of Audacity.
- The learner has developed an awareness of the sonic environment.
- The learner can extract information from a graphical representation of sound.
- The learner can distinguish between different listening strategies and use reduced and referential listening strategy.
- The learner can analyse a sound for musical parameters.
- The learner can create a composition using sounds by planning the composition, generating the sounds (recording) and producing the composition (compositional process).
- The learner can record sounds and soundwalks with the help of a hand-held recording device.
- The learner can evaluate which listening strategy to employ.
- The learner can analyse the main elements of an electroacoustic composition.

4.1.3 Introduction of Knowledge

After the learning outcomes had been defined it was important to decide from which angle the knowledge was to be introduced.

Sound as critical attribute

As previously mentioned it had been decided that sound is the critical attribute to form the concepts of electroacoustic music (further information about concept

formation in chapter 5). Introducing electroacoustic music following different paths would have been possible: two of these paths (history and technology) will be discussed in the following section.

History

To introduce a new subject, a new fashion or style or a musical genre following the historical developments of its time is a common approach which often is very useful. History has a huge influence on composers' lives as it represents the circumstances under which they worked, in retrospect. So being familiar with history is important in order to understand the reasons for composers to have followed certain styles and the reason for certain developments. The technical revolution and resulting inventions were important historical factors which enabled the development of electroacoustic music. Without the invention of, for example, the radio, electroacoustic music would not be the same. On the other hand it can be very difficult for students to relate to the past. Moreover, electroacoustic music develops quickly. The multifaceted possibilities of technological developments led to different styles of electroacoustic music evolving at the same time. This means to present electroacoustic music only with the aid of a timeline could be very confusing and would not meet the aim of this curriculum to understand the concepts of this music. As there were so many different styles developed simultaneously a systematic approach seems to fulfil the aims and objectives of the EARS II (P) Curriculum much better. Although the decision was taken not to introduce electroacoustic music as a historical narrative, the historical dimension is not excluded and will be present over a timeline which will be implemented in the website.

Technology

Another way of introducing electroacoustic music could have been to introduce it according to its technological development. Alongside new instruments and new devices it would have been possible to show the new styles of music which were composed with the help of these inventions. However, this was decided against for a number of reasons: although technological developments play a central role for electroacoustic music — in fact they are one of the pre-

conditions for it and therefore must not be neglected — the instruments and devices, computer programs and interfaces, are all aids which make it possible to create and to listen to electroacoustic music: they are not the music itself. Furthermore, it would not be possible to include technophobic students (and teachers) in a successful and positive learning process if the focus was too much on technology. So presenting electroacoustic music in terms of the different types of sound that are used within the music was chosen. Sound is something everyone, who is able to hear, can relate to.

As a result of the discussion outlined above the EARS II (P) curriculum distinguishes between two different types of sound, which are used within electroacoustic music:

a) Real-World Sounds (RWS) and

b) Generated Sounds (GS)

Real-World Sounds are sounds, which are audible in our environment. This category includes typical soundscape sounds, such as nature, the sounds of cities and human-made sounds. The term 'real-world sounds' was chosen instead of 'real-life sounds' which is an expression frequently used in everyday language. As real-life sounds do not include the sounds of inanimate objects, the term is too inaccurate. The term real-world sounds was drawn from Katharine Norman, who uses the term to describe the narrativity of sounds in soundscapes (Norman 1994).

Sounds understood as Generated Sounds are those that are entirely created with the help of computers or electronic instruments or technical devices of any kind. These are not manipulated real-world sounds. Distinguishing accurately between generated and real-world sounds is difficult as it depends on the way that the sound is perceived. For example the ring-tone of a mobile phone can consist entirely of GS, however as soon as the ringing mobile phone is heard in the environment it becomes a real-world sound: Although the origin of the sound has not changed, the function of the sound has changed.

Although this distinction is not accurate, it allows separating electroacoustic music in two groups in an understandable way. The music which consists mainly of generated sounds (in the EARS II (P) curriculum: Electronic Music, Noise Music), and the music which consists mainly of real-world sounds (in the EARS II (P) curriculum: Soundscape, *Musique concrète*, Hip-Hop (which is not an electroacoustic genre, but found its way onto EARS II (P) as a link from familiar music to electroacoustic music)).

Terms introduced in the EARS II (P) curriculum

A complete list of the terms introduced in the EARS II (P) curriculum can be found in Appendix A. Combined with the learning outcomes listed earlier in this chapter they lay the ground for the framework of the curriculum. The selection of terms represents just one possibility of a curriculum about electroacoustic music: more headers could be added, more terms introduced.²² However, the selection above mirrors the principles of designing the EARS II (P) curriculum, as outlined in the section about the choice of the headers music, technology and theory. The terms are all related to each other and do not require previous knowledge. Learners will be able to complete the curriculum in a manageable amount of time. To reiterate, this curriculum will function as a taster of electroacoustic music, not a university course. It is neither a musicology curriculum, nor a curriculum about (psycho)acoustics, but it is an opportunity to learn the basic concepts of electroacoustic music. Furthermore, it will be possible to combine this with the (complementary) parts about listening and composition, which will be included on the final EARS II website.

²² For example the development of new instruments over the last century would be an interesting topic.

4.1.4 EARS II (P) and the National Curriculum

The EARS II (P) curriculum has been built upon the “Principles of Curriculum Design”, which are outlined in the National Curriculum (National Curriculum 2) and draws upon three elements: curriculum aims, curriculum organisation and curriculum evaluation.

Curriculum aims and Curriculum organisation

Aims and objectives as well as curriculum organisation in connection with the choice for Learning Objects have been discussed in this chapter. Only the curriculum evaluation has not been covered so far and will be discussed below.

Curriculum evaluation

By giving feedback where possible, and showing the learners their progress, the EARS II (P) curriculum can also support pupils to become “confident individuals” (National Curriculum 2), which goes hand in hand with the general aims and objectives stated outlined at the beginning of this chapter. The broad aim to educate pupils, who are “responsible citizens” (idem), is encouraged by the EARS II (P) curriculum since the learners are nurtured by being creative. Discovering their own creativity can lift the learners’ self-esteem, which is a basic requirement for being a responsible citizen. This means that EARS II (P) can not only take part in fulfilling internal aims like introducing pupils to unknown music, it can also help to implement the National Curriculum’s basic aims.

Furthermore, the NC demands the support of the development of skills. The EARS II (P) curriculum fits foremost where “personal, learning and thinking skills” are demanded (see also the list of learning outcomes in this chapter).

In using a wide range of media and in encouraging young people to be creative the EARS II (P) curriculum fits in particularly within the “cross-curriculum dimension” of the NC. The NC states:

- “[The learners] should have opportunities across the curriculum to
- access and use a rich range of technologies, including broadcast media, film, printed communications, games, web, podcasts and animation
 - consider media as both consumers and authors of content
 - develop the skills to adapt to the changing nature of both technology and media
 - [...]
 - use technology to create products for real situations, and increase their awareness of its role in the creative industries and media
 - access a culturally and historically diverse range of technologies and media products
 - access the information that contextualises the way in which technologies are used and media products are made
 - use technology to personalise learning, so they can work at different times, in different places and with a wider audience” (National Curriculum 4).

For every quoted item the EARS II (P) curriculum can contribute to the NC. The EARS II (P) curriculum uses a wide range of technologies, works actively with the pupils and encourages them to apply things creatively.²³ In addition, it is important that technology is used to personalise learning. Due to the independence a web resource offers, users can learn and work with it at home with ease. Therefore, also the final item of the list above is covered by the EARS II (P) curriculum.

Regarding creativity, which is nurtured within the EARS II (P) curriculum especially by creative tasks (the “action cards”) in the sound manipulation section, the NC states:

“By engaging in creative activities, young people can develop the capacity to influence and shape their own lives and wider society. Everyone has the potential for creative activity and it can have a positive impact on self-esteem, emotional wellbeing and overall achievement. [...]” (National Curriculum 5).

The ‘listening’ and the ‘exploring’ parts of the EARS II (P) curriculum provide the basis for learners to find out everything they need to be creative. The users have the opportunity to explore the music by listening to it and learning about it.

²³ At the moment by using Audacity but by offering a final version of the Sound Organiser from 2012 onwards.

With the help of JavaApplets²⁴, that have been programmed for the EARS II (P) environment, the learners have the chance to comprehend previously learned content. Furthermore, the use of Audacity offers students the possibility to try what they have learned, and therefore to be creative.

The NC states further:

“Creativity and critical thinking are not curriculum subjects, but they are crucial aspects of learning that should permeate the curriculum and the life of the school. [...]

In order to develop young people’s creativity and critical thinking, they should have opportunities across the curriculum to:

- use their imagination to explore possibilities
- generate ideas, take risks and to learn from their mistakes
- refine, modify and iteratively develop ideas and products
- make connections between ideas
- engage in creative activities in all subjects, exploring links between subjects and wider aspects of learning
- work in relevant contexts, with real audience and purpose
- work with a range of creative individuals, both in and out of the classroom
- encounter the work of others, including theories, literature, art, design, inventions and discoveries, as sources of inspiration
- discover and pursue particular interests and talents” (National Curriculum 5).

Again, each of the items is covered by the EARS II (P) curriculum. By offering tasks to the learners which require them to think about possible solutions and then to research information the curriculum forces them to develop learning strategies (active and problem-based learning). For the successful development of problem-solving strategies each of these items above is important and necessary for learning.

Considering this with regards to the EARS II (P) curriculum, it demonstrates that EARS II (P) is able to support and maintain the objectives outlined in the National Curriculum.

²⁴ These applets have been developed by Peter Batchelor and offer live sound manipulation online.

4.2 The EARS II (P) Environment

4.2.1 Three Headers – Music, Technology and Theory

Developing a curriculum for electroacoustic music for inexperienced listeners demanded a reconsideration of the definition of terms. Under which headers they would be best presented also needed to be decided. Hence, a new framework of terms was necessary as the existing framework of EARS addresses researchers and experienced listeners. Additionally, the age group for the EARS II (P) curriculum is younger.

Needless to say, there were as many possibilities as terms. A basic decision had to be made as to which was to be the driving parameter. Considering the breadth of the body of electroacoustic music, among others this could have been the technological development or the (music) historical dimension. Although neither of these approaches was considered more or less important for the body of electroacoustic music, sound, as it is universally approachable, was decided to be the defining parameter for the choice of terms and therefore for the building of concepts. In general, there was a need for well-defined headers that are understandable by the target age group. These headers allow a quick overview and serve as a point of orientation in the EARS II (P) environment. Although there was a broad idea of the headers before the terms were finally chosen, the headers were defined after the chosen terms had been clustered.

The terms were chosen following a top-down and bottom-up process: During the bottom-up process the list of terms on EARS was taken and sorted according to the following criteria: What are the absolute basics an inexperienced listener needs to know in order to be able to reach the aims and objectives outlined above? What might also be interesting for this age group to know? In other words: what can spark interest?

The terms, which were chosen in this way, went into a second selection procedure: in the top-down process, then, only those terms were kept which

related to each other (for example - soundscape - soundwalk - recording) and those terms which were understandable for the focus groups without extracurricular knowledge (so it was decided for the introduction of listening strategies, but against the physics that learners would need to understand specific details of acoustics).

From these terms three headers were formed:

- Music, in which genres and categories of electroacoustic music are presented.
- Technology, which presents the possibilities of sound manipulation as well as an introduction to composition.
- Theory, which deals with musicological questions relating to sounds and music, dealing with notation, listening theories, music without musicians etc.

Of course, it would have been possible to introduce more terms. However, there needed to be a restriction somewhere, so it will be possible for learners to complete the EARS II (P) curriculum. As the structure of the curriculum is relatively open, more terms and tutorials can be added at any point. For the moment, for further information refer to EARS.

4.2.2 Learning Objects and Tutorials

After headers and terms had been chosen, a general decision regarding the structure had to be made. The next step was to find a way to present the content in an accessible structure. The challenge was to develop a curriculum which works concurrently online as e-learning and can also be used for classroom-based teaching.

As it was seen as ideal that the teacher could pre-structure the learning content for each learning session and each learning outcome they had in mind, it was decided to present the content in as flexible a way as possible. It is divided into small learning units, each unit introduces one or two new terms or facts. These

units, which are also called Learning Objects (LO), can be used in different contexts and combined in several ways.²⁵

The EARS II (P) curriculum was then designed after the following procedure:

- The process began with the definition of the learners' need, which led to the definition of the terms and headers.
- Following this the tutorial structure was designed and a first paper version was created.
- The first test phase, that included a review of the current stage of the tutorial development, led to further development and tests.
- The results of the second test phase, which focused especially on the content of the LOs, contributed to further development.
- The third test phase, in which the curriculum was used and evaluated in a real-life scenario led to the development of a "package": a prototype consisting of a repository of LOs and tutorials: the current EARS II (P) website.

4.2.3 Navigation

There are four ways to navigate through the EARS II (P) environment.

1) Exploring the knowledge repository.

This method of navigation is best described by the term 'clicking through'. This way, users of the environment (teachers as well as students) can get a quick overview of the content. All of the content is organised in Learning Objects (LO), which are accessible from the home page of the explore part of the website.

2) Tutorials

Instead of 'just' clicking through, the tutorial navigation offers certain parts of the content to be accessed through 'guided clicking'. Learning Objects from different headers are put together to a short course. This navigation is targeted at students who are working on their own (for example in form homework or voluntary working on the environment). Additionally, it gives teachers ideas of how to introduce electroacoustic music. To access this function the Guide Figure needs to be clicked.

²⁵ The technical side of pre-structuring a pathway with selected learning objects on the environment is not possible with the current system. However, there are plans to develop such a system for the final version of the EARS II website.

3) Timeline²⁶

This option offers a history-based access to the content of the curriculum. The Learning Objects are linked to a timeline (where appropriate). This has two effects: By clicking on a linked LO the year of the timeline flashes, which allows the user to associate the content of the LO immediately with a particular year. On the other hand, clicking on the year in the timeline results in a list of LOs linked to this year. This way it is possible to explore what happened in a certain year or decade.

4) Action Card Game

Each tutorial contains some tasks in order to support the learning process of the user. Accessing these tasks independently from the tutorials is possible by clicking on the *action figure*. Tasks come in form of Action Cards. By clicking on the *action figure* again a new task can be received.²⁷

The 'explore' option is the default setting. However, there are crossovers between the navigation options, meaning that switching from one navigation to the other is possible. Links for the tutorial navigation are fixed in every LO, which means that the user will be able to see to which tutorials each Learning Object belongs. Switching immediately from the explore navigation into the tutorial navigation is therefore possible. As the headers are always visible it is also possible to switch instantly from the tutorial navigation into the explore navigation. The action card navigation is on the one hand integrated in the tutorial navigation, but on the other hand refers back to the explore navigation through links to LOs which contain information that might help to solve the task. Finally, as the timeline does not offer new information, but sorts the LOs in another way, it is possible to switch from there into any of the other navigations, too.

²⁶ The timeline can only be seen on the current EARS II prototype. It does not appear in the paper version that can be found in appendix A.

²⁷ In a future development this way of navigation would need enhancing: 1) the content of the website should be accessible while seeing the task, 2) individual feedback on the solution of the task should be provided.

4.2.4 Design

The project aimed to keep the online environment as clear as possible. Information should be taken in easily, therefore a white background was chosen as well as black or dark blue font and only a few colours.

A colour-coded scheme has been implemented. Each header is associated with a different colour: Music – red, technology – blue, theory – green. Depending on which header an LO is organised under, the colour of the frame of the LO changes. So, if the user is working within a tutorial, where LOs from different headers are combined together, the user can see instantly to which header this LO belongs.

A second colour-coded scheme was considered, which was finally rejected: in this concept, each LO should have been colour-coded according to its difficulty. (For example, green for easy, yellow for medium and red for hard) This was not realised for two reasons. As the tutorials are structured in progressing complexity, an additional colour-coding scheme seemed to be confusing and not according to the principle of a clear design.

The other reason was that it was thought that this could put users off to try an LO which is marked as difficult (see also the discussion about restricted access in this chapter). Although it can have also the opposite effect of motivating users to get to the high levels, from a pedagogical point of view it needs to be said, that

- a) Levels of knowledge are dependent on the learner. What might be very difficult for one person does not necessarily need to be problematic for another learner;
- b) If a user comes to a page which is too advanced for the learner at this stage, it is easily moved away by clicking and also, as Laurillard (2002) outlines, even from content that is currently beyond the capacity of the learner, something can be learned. If this LO is marked as difficult or even worse restricted in access up

to the point other LOs on a lower level have been completed first, this can put learners off.

The current design and the basic navigation (exploring and tutorials) have been tested with the age group. See chapters 6 and 7 for more information about the test and the results.

4.2.5 Communication and Feedback

The most difficult decision about how to give feedback to the learners had to be made in connection with the design of the EARS II (P) environment. As the plans for this environment had to be realistic and feasible, it soon became clear that it would currently not be possible to offer online supervision for the single user option. This means that the EARS II (P) environment so far neither supports synchronous e-learning nor is supported by a learning facilitator or moderator. Gaining direct and personal feedback is therefore rather difficult for the learner in the single user option. In addition, the contact between learners is not possible so far as controlling the interaction between different users would not be possible. However, it needs to be kept in mind that this online environment offers a prototype for the final environment which will be realised in future, where those problems and also the findings of this PhD will be taken into account.

Moreover, knowing that this is neither an ideal teaching nor learning situation, this problem was not left ignored. As continuous feedback is highly important for successful learning (see Laurillard 2002), with the invention of the EARS figure who can explain facts and to exemplify complex problems, a compromise was found for the future version.

4.2.6 Stages of Development

The current prototype of the EARS II website has gone through several stages of development. In order to create a website that will be used by learners, feedback from a focus group was gathered (user-centred design). Therefore, the first design of the website was drawn on paper, and shown to a focus group of four participants in order to see if the design was suitable and the navigation clear. Working with the paper version allowed fast creation as well as easy changes (Krug 2000). This method is also used in rapid prototyping. Details of the process and the reactions to the paper version of the website can be found in chapter 7.1.

After the testing of design and navigation, content was focused upon next. How appropriate the content was for the target group was investigated focusing on levels of learning as well as on aspects of enjoyment. To ensure that the participant would not be distracted by any design features (and confuse dislike of the design with dislike for the content), a selection of tutorials and quizzes were uploaded to a wiki. A second focus group which included one participant from the previous test had to solve a quiz containing 10 questions which could only be solved by completing the tutorials. As all participants could solve this quiz (except for question 10 which was altered as a result), the next phase could start. Further information on the wiki testing can be found in chapter 7.2.

A content management system was developed by John Anderson in order to serve as an online repository for the content of the curriculum. However, this turned out not to be compatible with the learning system Yingchun Tian, a PhD researcher from De Montfort University, created as part of her PhD. For test purposes for the third test stage, she created a simple version of the website based on html and CSS. This version was used for the main study in the schools (see chapter 6.3) and updated and improved between October 2009 and June 2010. Due to unforeseen circumstances the direction of Yingchun Tian's PhD project changed which did not allow her to finish the learning system and the adaptation of John Anderson's CMS. A new solution was found, which is the system currently in use. It was realised by PhD researcher Nils Müller,

who works at Carl von Ossietzky University Oldenburg, Germany, who set up a content management system using the software modx. Müller realised the current system after my drawings and Tian's system. He also realised the interactive timeline as well as the technological side of the action card game.

5 An Application of Bates' ACTIONS model

The following section outlines and explains the decisions made with regards to the methodological approach. It is based on the ACTIONS model that Bates introduces in his book "Technology, E-Learning and Distance Education". This model was originally devised in order to analyse the technology in distance learning, but it can also be applied to describe the methodological decisions for the EARS II (P) curriculum.

ACTIONS is an acronym, which stands for Access, Costs, Teaching and learning, Interactivity and user-friendliness, Organisational issues, Novelty, and Speed. Bates explains each of these terms the following way:

- "A Access: how accessible is a particular technology for the targeted learners?
- C costs: what is the cost structure of each technology? What is the unit cost per learner?
- T Teaching and learning: what kinds of learning are needed? What instructional approaches will best meet these needs? What are the best technologies for supporting this teaching and learning?
- I Interactivity and user-friendliness: what kind of interaction does this technology enable? How easy is it to use?
- O Organizational issues: What are the organizational requirements, and the barriers to be removed, before this technology can be used successfully? What changes in organization need to be made?
- N Novelty: how new is this technology?
- S Speed: how quickly can courses be mounted with this technology? How quickly can materials be changed?" (Bates 2005, 49-50).

As this project is a non-commercial university project, two of the sections - costs and organisational issues - do not apply. Also, speed has not been an issue regarding this project. Hence, in the following sections the focus will be on Access, Teaching and learning, Interactivity and user-friendliness, and Novelty in connection with the EARS II (P) environment and Curriculum.

5.1 Access: How to approach the learning content?

As the curriculum will be presented on an e-learning environment, which can be used as a single-learner system or as tool for classroom-based teaching, the following needs to be considered:

Learning on the Internet is different from learning in a group of physically present learners. The role of a learning instructor differs much from that of a teacher. Each learner takes a much higher responsibility for their own learning than in a face-to-face teaching situation. A teaching situation always depends on communication, so just replacing the teacher with explanations in text form would not lead to successful learning. The teaching methodology needs to be changed:

Palloff and Pratt state that

“[...] a more active learning model is the model of choice for the online distance learning environment. Given the limitations of access to the students population, as well as such elements as time and distance, the instructor cannot be in control of how or what is being learned. And because they are left to some degree to their own devices, it is up to the learners to make sense of the body of knowledge associated with the course being delivered” (Palloff and Pratt 1999, 16).

To offer teachers and learners broad possibilities for accessing the learning content of the curriculum, there are two ways to work with the EARS II (P) curriculum.

The single-learner option

The single-learner option follows the basic methods of e-learning through the means of online learning. Online learning and e-learning are often used interchangeably according to Bates (2005), however their meaning is slightly different: “[...] e-learning can encompass any form of telecommunications and computer-based learning, while online learning means using specifically the Internet and the Web” (Bates 2005, 8). The learner will access the curriculum through the EARS II learning environment, which is accessible over the Internet. This method poses a few problems, as just presenting learning content on a website does not mean that learning will take place. Websites often are one-way systems. The user clicks through a number of pages, searches for

information and in many cases just skim-reads the page (see Krug 2000). As it is not clear with which motivation an 11-14 year-old youth enters a website (and especially a learning environment), one of the aims must be to spark and to retain their interest.

Sparking interest

Upon entering the website learners have two different ways of exploring it. They can either just 'click through' or they can follow pre-structured paths (tutorials). They also have the option to play an "action card game". Drawing a virtual action card the learners receive tasks, like quizzes, riddles, or creative tasks, which they can solve with the help of the information they find on the learning environment. They can also follow a provided link or find their way about without a guide.²⁸ The learners can decide at what point they want to draw a new action card, which means that they are allowed to stop and start tasks whenever they want.

A prototype of this action card approach has been tested in the second test series. (See chapter 7.2 for more information.)

Retaining interest

Once interest is sparked it is also very important to retain it. For this, regularly receiving feedback is essential. As a website is not a one-to-one-tutorial, providing feedback can be fairly tricky. Feedback can be divided into extrinsic and intrinsic feedback. Similar to the better-known distinction of intrinsic and extrinsic motivation, intrinsic feedback is feedback that is given within an action. The action itself is not commented upon but instead on its result. Every time a website changes because of a user's action, the website is providing intrinsic feedback. This can be the moving of the mouse cursor as well as the loading of a new page after clicking on a link.

Extrinsic feedback judges the frame rather than the content. Or as Laurillard says: "Extrinsic feedback is the feedback that operates at the level of descriptions of actions, and is therefore common in educational contexts"

²⁸ A search function was tested in test phase 2 with the wiki and will be implemented in the future version of the EARS II website.

(Laurillard 2002, 56). So, extrinsic feedback is given not on the moving cursor as itself, but on how useful it was to use the mouse to do a special action. In pedagogical contexts a common solution for providing extrinsic feedback is to assign tasks and to 'judge' the results.

The current system features quizzes that instantly give feedback as to whether the learners' choices were correct. Any other feedback has to be provided by the teacher by using the EARS II (P) environment as a blended learning tool.²⁹ It was originally planned, however, that at one point the learners would be presented with questions (for example via the Action Card Game). These questions would either be answered by multiple-choice or by typing answers onto a digital notepad. Using a full-string search it would be possible to search for keywords given in the answer. This would then allow a piece of software to analyse whether the answer was correct and therefore to give feedback accordingly. This feedback, then, should not be a judgement of 'right' or 'wrong' but rather state the right answer in one sentence, which would allow the learners to compare their solution with the provided answer. Although using multiple-choice questions might seem to be easier, there is always the risk that the users might attempt to build up a logical argument leading to a wrong answer. (See Laurillard 2002, 135). Laurillard recommends so-called 'concealed multiple choice questions', which use a keyword identification for an open-ended answer:

"The matching algorithm may be more sophisticated, e.g. allow misspellings [...]; or allow certain synonyms. However, with this method it is always possible for the student to get a right answer that the program cannot recognise. The feedback should therefore be cautious about right/wrong judgements. A common solution is to say something non-judgemental, but making explicit the correct answer, such as 'In fact it increases demand'" (Laurillard 2002, 136).

Unfortunately, the software used for the current system does not allow this, so a compromise had to be made.

The evaluation of the second test phase will show that the idea of the action cards sparks interest. Nevertheless, it is important that the questions on the

²⁹ However, using the EARS II (P) website as blended learning tool is strictly speaking not the single-user mode anymore.

cards differ from a schoolbook's questions: they are riddles, quizzes and creative tasks for the single-learner option. For the multi-learner option there are much more interactive tasks, such as group improvisations and role-plays, available.

Looking at the prototype of the EARS II project in context of other distance learning projects, it is difficult to categorise it because of the huge variety of learning possibilities which are offered via the curriculum and within the learning environment. Bates discusses different generations of distance education, which are of interest within this discussion, because they show the developmental potential which still is in the project.

While the first generation of distance education is considered as the time of sending print documents, such as textbooks and paper, and includes independent studies, the second generation includes a "multiple-media 'print + broadcasting' approach" in which communication with the tutor is possible. The development of the third generation was possible because of the development of the Internet and is "based on two-way communications media". The Internet and video-conferencing become important parts of distant education and the interaction between teachers and among students is in the centre of the learning process focussing on "equal distribution of communication between student and teacher (and also among students)" (Bates 2005, 6-7).

The EARS II (P) environment includes elements of all of generations, and probably at the moment mostly generation two: using Internet and communication with the tutor (for example via the EARS figure), however it does not allow communication between learners yet.

It is the aim that the single-learner option of the future EARS II environment will move up fully to the next generation of distance learning.

The multi-learner option

A multi-learner online mode, which allows collaborative online learning is envisioned for a later development stage of the project. However, the current version of blended learning classroom-based teaching can be seen as the prototype for an interactive online learning environment. This means that the curriculum has been developed always having this next step of development in mind. For now, the online learning system is replaced by interaction in the classroom.

Future development allow for possibilities, such as allowing a learning facilitator (who could be the teacher) to administer multiple accounts (setting up, organising passwords etc.). This administrator could also control all functions of the students' account, such as switching sound on and off, and monitor, where the learner is on the website. The administrator would have the rights to pre-structure the website as needed for the lessons (i.e., create a particular curricular navigation path).

Savage and Laurillard agree that technology-based teaching can enhance the teaching in the classroom, if it is used wisely and not just as a replacement for the normal lesson (see Savage 2005, Laurillard 2002). Approaches like this are called Blended Learning. The nomenclature of teaching with technology is vague and each author tends to use terms in a slightly different way. Other terms, which are used frequently for a combination of face-to-face teaching and e-learning, are hybrid or blended learning and mixed mode. In this PhD thesis Blended Learning is understood as classroom-based teaching which incorporates learning with the help of technology (in this case through the EARS II (P) environment).

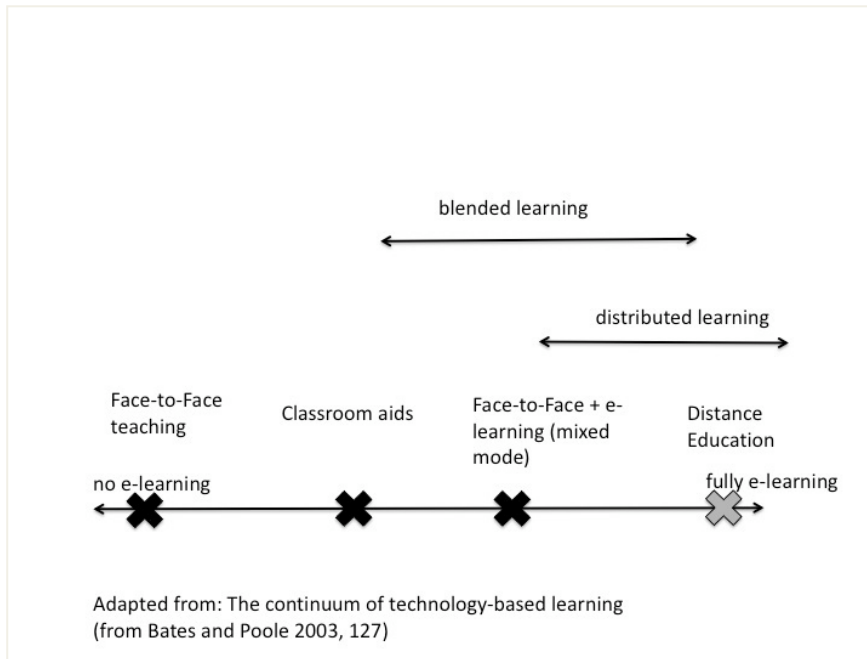


Figure 4. EARS II (P) and the continuum of technology-based learning

Figure 4, which is adapted from Bates and Poole (2003), shows where the EARS II (P) project (including both curriculum and environment) is located (indicated by the black x). It can be used as repository for teachers to gain information and teaching material to teach without computers (although the topic does only allow this up to a certain extent). Furthermore, it can function as a classroom aid (in the same way as a book or a CD), it can support the lesson as Blended Learning (here: mixed mode) and also serve as a distant education facility, although not at its full potential at the current stage, as outlined above.

5.2 Teaching and learning

Many general decisions regarding teaching and learning regarding the EARS II (P) curriculum have been discussed under Learning Theories in the previous chapter. More detailed aspects of teaching and learning will be discussed in the following section. Concepts and concept-formation will be focused upon, followed by an introduction to prototype theories, which are relevant in the

connection with the formation of concepts. After this the choice of media will be addressed. Finally, the role of composition within the curriculum will be discussed.

5.2.1 Forming concepts

To recap, two assumptions about learning and teaching on EARS II (P) have been made so far:

- 1) the learner is a holistic learner
- 2) learning is understood as process of knowledge construction

Seeing learning as a constructivist process also means that

“If we were not able to classify the things and events around us we would find it impossible to carry out the simplest task let alone the highly complicated mental operations of which we are capable. To attempt to treat all objects or events as unique would lead to an unmanageable task when it came to trying to comprehend and represent our environment. Instead we categorize objects and events” (Child 1997, 186).

Going back to the comparison of coming across electroacoustic music for the first time as similar to stepping in a complete new world (see chapter 1), it is clear to see that the process of categorisation, which is mentioned by Child in the quotation above, helps to understand something unfamiliar. This means the unknown world needs to be categorised and concepts need to be built in order to make this world understandable. Those new sounds need to be grouped together to make it possible to look at this more closely. Or in other words: getting to know something, i.e. learning, means to categorise it. “The end product is a concept - an idea consisting of attributes that are sufficiently similar as to be grouped together” (Child 1997, 186). The parameter which forms the category or the concept is called the “critical attribute” (ibid), which, in case of the EARS II (P) curriculum, is ‘sound’.

This often happens on a subconscious level: the learner does not necessarily realise that these concepts are formed during the learning process:

“Many concepts are formed without our conscious awareness. Values established by our culture and which regulate our daily conduct have often been formed as habits in our childhood without our realizing it. Aversions and prejudices frequently are stamped into our repertoire of responses in this way. Dislike of animals, racial prejudice and attitudes towards religion or politics are planted imperceptibly during a lifetime” (Child 1997, 190-191).

An example of this would be the statement that contemporary music does not sound pleasant. This is a prejudice which is based on the concept of old music = pleasant and new music = not pleasant.

In psychological analysis the process of forming concepts can be described using the following pattern:

1. Being able to differentiate the attributes from the environment.

“[The] child must have sufficient perceptual skills to distinguish the characteristics observed in order even to begin the formation of categories” (Child 1997, 191). The author Dennis Child gives as example that many young children say ‘daddy’ for all men, which is explained by the fact that those children have not learned how to differentiate (or have not learned the word, yet) (see *ibid*).

2. The next step is perceiving groupings, which is done by recognising structural or functional similarities (see *ibid*).

3. After process of grouping has taken place “they have to *categorize* the groupings into hierarchies, thus devising classes of experience with increasing levels of complexity and abstractness” (*ibid*, italics in original).

The EARS II (P) curriculum offers learning on electroacoustic music in exact these three steps:

1. Being able to differentiate

The knowledge is presented along with the concept of the differentiation between Real-World Sounds and Generated Sounds.

The listening training trains differentiation of sound and sound source as well as pitch, rhythm, duration and timbre of a sound.

2. Grouping: recognising structural or functional differences

Finer differences are introduced in a next step: for example the difference between *musique concrète* and soundscape, which both use real-world sound, but in different ways.

3. Categorising groups into hierarchies.

Once the learners have passed steps one and two, they will be able to categorise unknown music using the method described above.

In the following section different theories of how to form concepts will be introduced.

Classical theory (Howard)

In Howard's classical theory the defining features (attributes) are abstracted from the actual experience. That means: "To define a concept, the common features have to be sought and these are then applied to any new exemplar" (Child 1997, 186).

This throws up the problem that there are certain concepts with fixed attributes and probabilistic concepts, which have uncertain attributes. Child offers as examples for fixed attributes the concept of a virgin or of the moon, and for the probabilistic concept that of a bean bag, which can be categorised in the concept of 'chair', although it has no even surface and no legs.

Applying this to the EARS II (P) curriculum, it can be said that electroacoustic music will probably fit best as a probabilistic concept. Art in general is not static, artists try continuously to broaden and cross the borders of their creative process. In order to be able to grasp probabilistic concepts, it is important that the reasons for categorisation are understood properly.

Hierarchical theory

The hierarchical theory sets out networks of concepts. These “networks of concepts can be arranged hierarchically and consist of *nodes* which represent key concepts. The information “stored” at these nodes is illustrated in Figure 7.1 of Child’s book (186).

Animal	Fish	Goldfish
Has skin	Lives in water	Gold colour
Moves	Has gills	‘Domesticated’
Eats	Swims	Small
Etc	Etc	Etc

Spreading activation theory

The spreading activation theory is also build on a network of nodes, but unlike the previous theory these are not organised into a hierarchy. Child explains “When a concept is presented a node is activated and this activity spreads out to neighbouring nodes. By a process of ‘true’/‘false’ decisions at the nearby nodes, evidence is accumulated to define the presented concept” (187) and “This process has been used to explain the acquisition of concepts as a form of hypothesis-testing (Bourne *et al*)” (ibid).

This theory distinguishes between extensional concepts and intentional concepts. In extensional concept formation the “[...] meaning given is the widely acknowledged one defined in terms which are patently clear to anyone observing the object or event” (190). While the intentional formation: “[...] can vary considerably from one person to another” and “is defined as result of personal, subjective experiences accompanying the formation of the concept” (190). This can also include concepts with no universal acceptance.

This form of concept building is interesting and relevant for the development of the EARS II (P) curriculum. It is one thing to give extensional concepts to learners which is done by the explore-navigation of the environment, however,

the learner needs to 'own' the concepts for optimal learning success.³⁰ Furthermore, it needs to be kept in mind that a sound itself can already represent a concept: a bell sound represents not only the concept of a bell but can also represent the concept of church, belief, war, danger etc. The unexpected combination of sounds in soundscape music and the use of manipulated real-world sounds in *musique concrète*, therefore, stirs up those concepts, but also offers a chance to enhance them. Dislike of electroacoustic music therefore can also come from a confusion of subconscious intentional concepts of sounds and/or the world.³¹

5.2.2 Advantage of concept-based presentation

Therefore it seems to be only logical to choose a teaching approach that is based on existing concepts. Step-by-step those concepts will be enhanced. This offers the opportunity to identify problems at their roots. As argued in chapter 1, the concept (or prototype) of electroacoustic music needs to be developed. Offering new concepts allows a new perspective on sounds and music in general. As outlined above, music itself can be categorised as a probabilistic concept. However, it can further be assumed that many listeners have an extensional concept of (electroacoustic) music. In order to be more open to new styles of music, it would be of advantage to change this into an intentional concept. A concept-based presentation of the knowledge picks the learner up from their stage of development of concepts and aims to enhance these concepts.

³⁰ This will be referred back to in the evaluation of test phase 3 which can be found in chapter 7.3.

³¹ Thinking back to the initial metaphor: It would be likely that the inexperienced listener at their first electroacoustic music concert just dislikes this confusion, i.e. the situation, not necessarily the music itself.

5.2.3 Media

Particular consideration had to be made regarding which media should be used for which teaching method especially because the learning content can be accessed in different ways.

Referring back to the different types of media Laurillard discusses in her conversational framework (narrative, interactive, adaptive, communicative and productive media) she outlines that

“The point of a good classification system is that it should be powerful enough to embrace the ideal as well as a recognisable reality, and thereby, make the shortcomings of our realities apparent. A classification system that starts by classifying what there is will fail to address a pedagogical ideal, and that is why the current attempts are unsatisfying” (Laurillard 2002, 83).

Nevertheless, the discussion of different types of media is inevitable, especially in the case of the development of an online learning environment. Narrative media support a learning experience which is attending and apprehending. It is delivered in print, TV, video and DVD. Investigative and exploring learning behaviour require interactive media. A library, CDs, DVDs and Web resources can support this. Discussions and debates demand communicative media, such as seminars and online conferences, while experimenting and practising require adaptive media, such as laboratory work, field trips and simulations. The last type of media, the production media, includes essay writing, products, animations, models etc. and fosters learning experiences, such as articulation and expression (Laurillard 2002, 90).

Laurillard insists that not too many narrative media should be used as the user must always have the feeling of ‘doing something’:

“The presentational qualities of multimedia allow tutorial programs to offer brief introductions to the content being studied, but these are unlikely to use any lengthy narrative form. The style of study required for apprehension of the structure of a narrative and through that, of its meaning, is not compatible with the style of study required for ICT [information and communications technology]. Because computer-based media are minutely controllable and interactive, the student inevitably expects continual prompting whereas a passage of text or a video sequence requires sustained attention, but no action” (Laurillard 2002, 136).

Therefore the choice of different media used for teaching in the curriculum has been made cautiously. As the curriculum is presented to the learners within a learning environment, interactive media are pre-dominant.

Laurillard draws the conclusion in quoting a study carried out by Brooksbank:

“However moving from an adaptive medium of continual activity, to a narrative medium of continual receptivity is a disquieting jump for students. The sit-forward/sit-back media do not make a happy combination. For that reason, the video used in conjunction with tutorials is usually shown in very small clips, of a few seconds or so. Text as well, aside from the difficulties of reading text on a screen, is kept to short passages in well-designed programs. Otherwise, there is an observable tendency for students to ignore it, or become impatient with it, a point confirmed in an evaluation of the WinEvo materials (Brooksbank *et al*, 1998:49)” (ibid).

This explains why ‘sit-forward’ media are important for EARS II (P).

Bates focuses on the fact that the learning experience and not convenience should be criteria for the selection of media: “If the technology is not effective educationally, then no matter how cheap, or how convenient it may be for access, it should not be used” (Bates 2005, 58).

The problem, he outlines, is that a) not all teachers can handle all technology and b) not all students react in the same way to the same technology, which means that learning success is not guaranteed no matter which technology is used. Using technology for technology’s sake, therefore, will not lead to a successful learning process. Instead of classifying the different media Bates puts forward a more pragmatic approach:

“However, instead of trying to make crude comparisons between different technologies, the question that needs to be asked is one posed by Wilbur Schramm as early as 1972, ‘Under what circumstances and for what instructional purposes is a technology best used?’” (Bates 2005, 59).

Decisions regarding the use of media within the EARS II (P) environment were partly made based on Laurillard’s classification of different types of media and partly on the pragmatic approach of Bates. The classification in sit-forward and sit-back media appealed especially when students might be working alone with the website for which methods of sparking and retaining interest are always important. On the other hand there were limitations: technological limitations in the development as well as limitations of the technology that is available in

school. For example, it is not feasible to expect schools to have full recording equipment or a studio available. Furthermore, for the effective use of sound files it had to be considered that the Internet connection of a school might be limited, so it was not seen as an advantage to offer sound files in best quality as this would slow down the connection. Bearing in mind that the aim of this curriculum is to teach music, this was a crucial decision knowing that the ideal sound quality would probably not result in ideal teaching material.

The LOs on the EARS II (P) environment use different types of media. Examples of narrative media can be found in the LOs about the life of composers, the introduction of genres and to some extent also in the listening examples. Interactive media are featured especially within the listening exercises. Regarding adaptive media it is possible to “mess around” with sound which could count as what Laurillard describes as practising and lab work. Productive media are available in the form of composition and improvisation tasks. Communicative media are only available in the classroom-based version of the curriculum. The skilful combination of those LOs will result in tutorials with an even distribution of different types of media.

5.2.4 The role of Composition in the curriculum

Two problems arise when discussing composition within a curriculum:

1. How can composition be taught effectively to all students? and
2. How can composition be assessed?

1. How can composition be taught effectively to all students?

While composing with sounds the “What you hear is what you get” approach (Feist 2008), which has been mentioned in chapter 1, can motivate the learner as the step of learning musical notation can be skipped. Furthermore, the world of sound manipulation offers a new way of looking at music whereas traditional note-based composition often requires prerequisites (notation, harmony and

counterpoint, instrumentation) that need to be learned in order to create an effective composition. Prerequisites for composing with sounds using technology are learned much quicker and involve: learning a computer program; learning how to listen to sounds (which is also important for traditional methods of composition); learning basic methods of sound manipulation. Of course, it is possible to go into much more depth study this type of composition for years, and become a master in this field. However, the approach described above is enough to enable students to learn the basic concept of composition: to create a musical artwork.

2. How can composition be assessed?

Having creative tasks in a curriculum always evokes the question of how to assess these. Simon Emmerson is right when he remarks that “composition has moved to too great a degree towards ‘objective’ or ‘knowledge-based’ criteria and has forgotten the role of shared ‘subjective’ experience and exploration” (Emmerson 1989, 142).

Despite the fact that Emmerson meant more the actual compositional process, this development obviously also influences the teaching and therefore naturally the assessment as well. As a result the danger lies in the wish to assess compositions based on such knowledge-based criteria.

The compositional process in the EARS II (P) curriculum, therefore, is seen as

a) a method to deepen knowledge of electroacoustic music. There will be no assessment of creative tasks. Compositional tasks offer students the possibility to recap what they have learned using another learning channel. Or in other words, different learner types (see Kolb’s learning cycle) require different methods.

b) another way to access electroacoustic music than purely cognitive strategies allow. The ability to compose is a learning outcome, however having different learner types in mind the curriculum aims also to include students whose strengths are not in the realm of creativity. Thus, it is not the aim to educate a

new generation of composers, but to acquaint students with electroacoustic music. Consequently, composition is one effective way of doing so, but it is not the only way to access electroacoustic music.³²

5.3 Interactivity and Ease of Use

Two relevant factors in the development of the EARS II (P) environment spring to mind for this section. These are the user-centred design and also the interactive use of the website. The user-centred design approach will be explained in more detail in chapters 7.1 and 7.2, therefore this section will focus on interactivity.

As mentioned previously, the current system is not the final version of the EARS II (P) environment. The recently commenced project “Composing with Sounds” hosted by the MTIRC of De Montfort University allows the continuous development of the environment until 2013. There are plans and visions for the further enhancement of this environment.

5.3.1 Visions of the multi-learner mode

Currently, the website allows many learners to use it at the same time, however it is not yet implemented that groups of learners, such as a school class, can use the environment together while interacting with each other. The vision of the next version of the EARS II website includes that school classes (or other learning groups) can open connected accounts for the environment. These accounts can be monitored by the teacher, who will oversee the work of the students. Pre-structuring a learning path (i.e. creation of new tutorials) will be possible.

5.3.2 Web 2.0 implications

³² The results of the third test phase have shown that there was no difference in rating the appreciation of electroacoustic music of the students that had specialised in composition or in another task during the case study.

Facebook, Twitter, Flickr and Soundcloud have become increasingly popular in recent years. These websites offer a broad variety of advantages that make teaching and learning easier. For example Soundcloud offers users the option to tag sound files with comments, which allows an in-depth discussion of pieces on the web. In the current system, the sound files have been uploaded to Soundcloud and embedded into the website. However, the comment function had to be disabled, as it would not be possible to monitor the comments. Another possibility would be to offer every user their own gallery, similar to a Facebook profile. Sounds and compositions could be shared and tutorial content could be discussed. This could be realised by using Drupal software.

5.3.3 User-interaction

If web2.0 applications were realised, user-interaction could be supported. Peer to peer learning on a fun medium would reflect another world of learning. This way the learning process could be designed more effectively as Palloff and Pratt have outlined:

“The creation of a learning community supports and encourages knowledge acquisition. It creates a sense of excitement about learning together and renews the passion involved with exploring new realms in education. The collaboration involved in learning together in this way truly creates a sense of synergy, as Stephen Covey (1989) describes it, or a chemistry between people that creates an atmosphere of excitement and passion for learning and working together. The total outcome of knowledge acquired and shared is far greater than what would be generated through independent, individual engagement with the material. The bonus is the newly developing sense of self and sense of empowerment that accompanies the process. The power of community is great. The power of a learning community is even greater, as it supports the intellectual as well as personal growth and development of its members” (Palloff and Pratt 1999, 163).

However, it is important not to rely on new developments in the technology too much.

“Electronic pedagogy does not advocate the elimination of faculty in the delivery of online courses. In fact, just the opposite is true. We are promoting the development of new approaches and skills for faculty so that their teaching in this medium might be more effective. Electronic pedagogy is not about fancy software packages or simple course conversion. It is about developing the skills involved with community building among a group of learners so as to maximize the benefits and potential that this medium holds in the educational arena” (Palloff and Pratt 1999, 159).

5.4 Novelty

The EARS II (P) curriculum represents a teaching resource for electroacoustic music, which combines intellectual learning and practical creative tasks (composition, improvisation).³³ Furthermore it presents broad access toward electroacoustic music via a listening training and an educational selection of music examples (not to be confused with the “listening” part of the online environment for which Rob Weale was responsible).

Intellectual learning uses the strategy of presenting the learning content clustered in concepts instead of history. The listening section of the EARS II (P) curriculum includes listening training which is unique of its kind and was developed as part of this PhD research.

This is a new approach towards electroacoustic music. The author of this PhD is not aware of any other educational project of this scope that addresses electroacoustic music. The prototype of the EARS II project offers a broader perspective by introducing a good number of the main concepts of electroacoustic music, while covering aims and objective of the National Curriculum. The EARS II (P) offers support for learners and teachers and is flexible in terms of access. This curriculum cannot only be used without a teacher, but can also be employed for classroom teaching. Therefore, the curriculum is suitable for a variety of learning situations.

³³ The idea of the combination of learning, listening and making goes back to Leigh Landy, however the learning part was realised within this PhD research.

6 Methodology

6.1 Introduction

After outlining the problems that can occur in the reception of electroacoustic music at the beginning of this thesis, followed by the demonstration of the motivation for this research, a curriculum for electroacoustic music aiming at inexperienced listeners has been introduced alongside its pedagogical foundation. The curriculum has been presented as a way of enhancing the appreciation of electroacoustic music. How can it now be assured that this curriculum fulfils the purpose it was developed for?

An obvious strategy would be to test the curriculum in a safe environment with a selected focus group. This way distractions, such as disruptive participants, unsuitable rooms or old technology etc. would be avoided. Participants would give constructive answers and the focus could be fully on improving the curriculum. However, a school is not a lab. The criticism of the Open-Earedness Theory testing (see chapter 4) should be borne in mind: participants in those tests were sitting in a lab-like situation with headphones in front of a computer following the task of rating their appreciation of music they listened to. It was further noted that the outcome probably would have been completely different as soon as the participants were in their usual environment surrounded by their peers which would be the case in for example a school. For this reason the curriculum needed to be tested in a real-world scenario. In order to gain an objective opinion on the curriculum it would be essential not to focus on the opinion of only one school, but rather to gather different views on and reactions towards the curriculum. Thus, involving more classes from different schools in the study would be preferable. Furthermore, time for discovery of electroacoustic music and the actual learning process should be given.

6.2 Preliminary Considerations of Appropriate Qualitative Methods

Considering that the research would take place in a school, it was necessary to opt for a method that is adaptable to changing circumstances, interruptions, noisy participants, etc. Further, the method needed to fit into the educational setting of the school naturally. The data collection, although an integral part of the research, should not be at the centre of attention for the participants. Further to this, the methodology needed to be open-ended as there is a lack of models of electroacoustic music education that could serve as a guideline for measuring learning success. In the previous section it has been established that the curriculum should be tested in different school classes. Therefore, the chosen methodology should be able to deal with a substantial amount of data. Furthermore, the need to be able to deal with differences in quality of data should be accommodated for two reasons: first, the target group has been defined for Key Stage 3. To have the same learning levels within this age span would be unlikely. Second, different learning levels will occur in different schools, too. The methodology should, further, allow recording of learning progress as well as change of listening behaviour and appreciation, as these are considered to be important factors within the evaluation of the curriculum.

Interaction of Teaching Methods, Data Collection and Data Evaluation

In a study that investigates the effectiveness of teaching content teaching method also plays a very important role. The teaching method virtually takes on the role of a regulating screw in the construction of the mediation of knowledge, data collection and data results.³⁴ Hence teaching method and data collection strongly influence each other. Good teaching enables the collection of useful data. Similarly, the data of the study feed back into the teaching method, which can be seen in the changes that took place following an initial beta study. Reactions of dissatisfied participants, for example making fun in questionnaires or, even worse, projecting negative feelings towards the teacher onto the

³⁴ This does not necessary mean positive data, but data that leads to a conclusion.

teaching content, make any evaluation not only more difficult but also inaccurate. In this case the focus in the evaluation cannot be laid on the teaching content which should be at the centre of the investigation in this study.

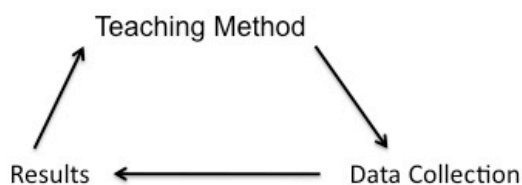


Figure 5. Influence of Teaching Method, Data Collection and Results

6.3 The EARS II (P) Methodology

The issues outlined above have been considered in the design of the methodology of the EARS II (P) study. The following paragraphs will introduce the different phases of the study, the methodology for the delivery of the study, the design of teaching and lesson plans, the different tests developed for the study and the method of evaluation.

6.3.1 Three test phases

Before the real-world testing of the EARS II (P) curriculum could happen, it was necessary to make sure that the curriculum was understandable for the target group. Therefore the taught knowledge and the ways of presenting it needed to be tested. As the curriculum is presented online, the design and navigation of the learning environment needed to be validated, too. The study has therefore been subdivided into three test phases. Test phases one and two have been developed in order to prepare the curriculum for real-world testing which can be seen as a validation of the instrument that will be used in the last test phase. The methodology and results of test phases 1 and 2 will be described in chapter 7.1 and 7.2, while this chapter will focus on the methodology and evaluation of the third test phase, which was the actual real-world study of the curriculum.

6.3.2 Action Research (Methodology of Delivery)

The over-all methodology of this study falls into the category of Action Research. Cohen and Manion define Action Research as follows:

“[...] action research is situational – it is concerned with diagnosing a problem in a specific context and attempting to solve it in that context; it is usually (though not inevitably) collaborative – teams of researchers and practitioners work together on a project; it is participatory – team members themselves take part directly or indirectly in implementing the research; and it is self-evaluative – modifications are continuously evaluated within the ongoing situation, [...]” (Cohen and Manion 1994, 186).

Furthermore, Action Research has been proven to be a successful method of curriculum testing because

“... action research is appropriate whenever specific knowledge is required for a specific problem in a specific situation; or when a new approach is to be grafted onto an existing system. More than this, however, suitable mechanisms must be available for monitoring progress and for translating feedback into the ongoing system. This means that, other things being equal, the action research method may be applied to any classroom or school situation where these conditions apply. We have already referred to the suitability of the approach to curriculum research and development” (Cohen and Manion 1994, 194).

Following the above definition, the EARS II (P) study can be classified as Action Research: The curriculum was taken to schools and tested in this environment (situational). The researcher took over the role of a teacher and worked with the participants (participatory). Over the whole study continuous feedback has been taken which has influenced the delivery teaching of the case studies (self-evaluative).

In the following section the methodology for teaching and learning will be discussed as well as the methodology that was applied to the data collection.

6.3.3 Teaching and Lesson plan design

The compilation of the teaching sessions was based on the theoretical findings outlined in chapter 4. A representative selection of tutorials and topics from the EARS II (P) curriculum were introduced (mainly soundscape and *musique concrète*). The teaching methods deployed in the course of the workshops were active learning (especially problem-based learning) and collaborative learning.

Five teaching units were developed, which were applied in five lessons. After the participants were taught the necessary basics in lessons 1 and 2, the class were split up into four groups to work in for lessons 3 and 4. Each group had to solve a task (problem-based learning), for which they had to do research and then undertake a creative process (either composition or devising a role-play). The practical sessions were based on blended learning which included the use of the prototype of the EARS II (P) environment by the participants as a research tool. Furthermore, a selection of pieces were made available at “listening stations”, where the participants were able to listen to soundscape music and *musique concrète* via a CD player and headphones. A more detailed description of the actual content of the lessons can be found in the following chapter, where the study is introduced in more detail. A lesson plan can be found in appendix B.

In this context, it is important to discuss the role of the teacher within this study. For this research the teacher is understood to be an instructor or learning facilitator; hence the main tasks are to guide the teaching session and to structure it. The instructor offered input and kept an eye on the time, answered questions where they were raised and helped when problems occurred. Although Cohen and Manion state that best results can be gained by a close collaboration of researchers and teachers (1994, 190), in this case I as the researcher have taken on the teacher’s role. Working together with a teacher is without question a good idea in order to improve existing curricula. This research, however, was carried out because no other curriculum that teaches electroacoustic music at Key Stage 3 level has been found in the UK. In all case studies the teachers would have had to learn the content from scratch. Due to

the time restrictions which come with this being PhD research, it was not possible to teach the teachers first and then to carry out the case studies. Consequently, the teaching was mainly carried out by myself. As outlined above, this is methodologically not problematic as Action Research is participatory and the researcher can be part of the system. However, extra support was provided by PhD and Masters students with teaching experience as well as from 3rd year undergraduate students focusing on community arts. It was possible to organise this for all case studies except for the beta study. This allowed me to step out of the role as teacher and to observe the study.

The lesson plans were designed by writing a so-called Ziel-Inhalt-Methode (ZIM) Paper which translates to Aim (Ziel)-Content (Inhalt)-Method (Methode). The ZIM paper is a method of designing courses and seminars which is used in youth and adult education in Germany. Tracking the origin or founder of this model was not possible; it probably evolved from the experience of practitioners over the years. The aim of writing a ZIM paper is to create well-balanced lessons by looking at aims (= learning outcomes and objectives for the lesson), content (= the knowledge that will be taught) and method at the same time. A lesson is out of balance when aim, content or method are not proportional to each other. An aim can be either a learning objective (for example, “by the end of the learning process the student will be able to do xyz”) or a methodological aim (for example, the students are split into groups). The content describes everything that will be learned in the lesson, the method outlines what teaching method will be applied (frontal teaching, group work etc.).

The ZIM paper is written as a table: the rows contain the individual teaching steps; the columns contain aim, content and method. In the lesson plans for this case study, the columns have been enhanced with time, duration, responsible person and material. Reading the columns, the lesson plan becomes also a handy check list for time and material. As can be seen in Figure 6, the ZIM paper presents each teaching step broken down in aim, content and method at one glance; acting almost like a script for the teacher / learning facilitator. This is important for the transparency and clarity of teaching, especially in cases of

team teaching. Visualising the teaching aim in this way also helps to keep the teaching aim in mind.

As the ZIM paper can also function as a detailed lesson script, it appears at first view more teacher-centred than student-focused. Nevertheless, each step follows after careful consideration of the students' needs. This can be seen in the variety of teaching methods and the amount of content that is introduced in each lesson. An example for this can be found in session 2 of the case studies (for this and the following examples in this paragraph, please refer to Appendix 1, Lesson Plans). The focus was laid entirely on listening (content), however the sounds varied as well as the aligned tasks (methods). In sessions 3 and 4 of Case Study 3 the students looked closer into composition and theoretical aspects of soundscape and *musique concrète*. As the amount of content that needed to be introduced was too much for one individual, the group was split in four and each group focused on another topic. Teaching methods for those sessions contained problem-based learning as an overall method, frontal teaching to introduce software, and self-directed learning in form of research tasks. Furthermore, the column 'Aim' in a ZIM paper not only states aims that are directly related to learning outcomes. In fact, student-centred aims such as 'Class knows us, we know the class', 'Smooth start into the lesson' or 'Class knows what will happen in this lesson' can be found in the lesson plans for the Case Studies. These aims do not represent learning outcomes as such, but will help to develop a good learning atmosphere which then will support the students' learning.

Duration	Aim 1	Content 2	Method 3	Material
10 min	Students can identify the main parameters (musical value of a sound) eg. Pitch, duration and rhythm.	<p>Transition, introduce 'reduced listening'</p> <p>I want to introduce you to a way of listening that helps us identify the musical values of a sound. (play track 1)</p> <p>Does anyone recognise the sound?</p> <p>Reduced listening is an artificial listening technique. It is not how we usually listen to sounds. It requires you to forget what the sound suggests or what it means and listen to the sound itself. If we play a sound over and over in a loop it can help us hear beyond the sounds meaning and source. We can hear into the sound and analyse what is going on within it. We can identify its musical value.</p> <p>I will play the same sound again but looped. Listen carefully, forgetting the source and meaning of the sound. Instead, think about the musical values we discussed earlier. Also, when you listen carefully, is it just one sound or are there layers? If so can you tell what these different layers are? (play track 2)</p>	<p>Short experiment. Play a sound that they will recognise once. Hands up if they can describe the sound.</p> <p>Play the same sound on loop. Ask them to describe the sound without mentioning it's meaning or source concentrating on the parameters discussed earlier eg. How long, how high or low, how it changes and any rhythm within the sound</p> <p>Ask what they noticed about duration. One long sound, lots of little sounds or a mixture?</p> <p>Ask what they noticed about pitch/es</p> <p>Ask what rhythms they noticed.</p> <p>How many layers? What could they be? How they all add together to make the overall sound of a train.</p>	<p>Track 1. Single train sound</p> <p>Track 2. Looped train sound</p> <p>Plain paper and pen for each student</p>

Figure 6. ZIM paper

The ZIM paper is mainly used in non formal educational settings where constructive feedback is applied (as opposed to formal grading): the ZIM paper does not include an additional column for assessment. Nevertheless, an assessment could be included in the plan: broken down again into aim (investigation of learning outcome), content (content of assessment) and method (type of assignment: oral exam, essay, quiz...) it could be integrated into the structure of the ZIM paper.

6.3.4 Data Collection

Although, the main part of the data collection was completed in the first and last lesson of each series of workshops (lessons 1 and 5), the data collection continued throughout the workshop by collecting regular feedback from the participants. Key points of the investigation were to record the change of knowledge and appreciation over the time of the workshop.

1) Knowledge was tested through monitoring the learning progress of each group. In questionnaires factual knowledge was tested by asking for definitions of terms and names of pieces and composers. The questionnaire also tested for conceptual knowledge by asking for the participants' change of listening behaviour. Additionally, the participants were asked to write letters about the workshop to someone who has not taken part in it. Both questionnaires and letters are described in more detail later in this chapter.

2) Change of appreciation was tested by tracking reactions to electroacoustic music before and after the completion of the workshops with the help of a Listening Response test. This test was designed on the basis of the Intention/Reception methodology. As the aim of the third test phase was to investigate the influence of knowledge on appreciation, the I/R methodology was adapted to fit into the five teaching sessions. Therefore, the listening sessions were reduced to two: the first listening process took place at the beginning of the first lesson and the second at the end of the last lesson after teaching and learning had taken place. Instead of a formal discussion, a short informal discussion took place after each listening session. It was assumed that by the time of the second listening response test the participants would have developed into experienced listeners. Both results could then be compared and it was anticipated that the answers would be significantly different in the second listening response. In contrast to the I/R study this listening response test did not include multiple groups of different listening experiences, but followed the alteration of the listening experiences of the participating groups.

The participants' appreciation was also addressed in the second questionnaire. Two questions can be linked directly to appreciation: the first investigated if the participant would like to listen to this music again (question 7), the second inquired if the participant would like to attend a second workshop going into more detail (question 8). Both tests will be discussed in more detail later in this chapter.

6.4 The Tests

6.4.1 The Questionnaires

Two questionnaires were developed in order to establish a picture of the participants at the beginning and the end of the case study. In the following paragraphs both questionnaires will be introduced and discussed.

Questionnaire 1

The first questionnaire was given out at the very beginning of the study. It asked for statistical facts about the group, such as age, gender, and ethnic origin. Furthermore, it recorded the musical education of the participants as well as their musical preference. Technological knowledge (ability to use a computer) and the amount of time spent online were requested as well as if they had heard (of) electroacoustic music before.

Questionnaire 1

EARS II – Workshop Questionnaire

All data will be saved anonymously, but please give your name that I can compare your answers with other questionnaires from you. Thank you.

Name:

Age: male/female

Ethnic origin:

Please tick the category that you feel best reflects your ethnic origin:

Asian

Indian Pakistani Bangladeshi Other Asian: _____

Black

Caribbean African Other Black: _____

Chinese

Chinese Other Chinese: _____

Mixed

White and Black Caribbean White and Black African
 White and Asian White and Chinese
 Other Mixed: _____

White

White British White Irish White Other: _____

Other ethnic Group

Other ethnic Group: _____

Ethnicity

Prefer not to say

Nationality: _____

[Nationality was asked for because of an initial idea that there could be a connection between the different musical background of different ethnic groups and the appreciation of electroacoustic music. The data from this research route was omitted in this thesis because the result was inconclusive.]

1. What is your favourite music?

[This question was asked in order to relate the results of the studies back to the musical experience of the participants. It also aimed to find out the musical horizon of the participants.]

2. Do you play an instrument?

If yes, which and which grade do you currently have?

[This question investigated the musical background of the participants. As the first two test phases had been carried out with a majority of musically trained participants, it was important for the validity of this study to have a mixed group in this test phase.]

3. When you learn something about music, what interests you most?

(for example composers, different styles, different instruments or pieces)

[This question intended to find out, which parts of a music lesson the participants liked. As the question was not formulated very well, the answers were not totally clear either.]

4. How experienced are you in using a computer?

Please rate between 1-5.

(1 = I need more training, 5 = very good, able to use programming languages)

[As a good amount of the teaching included or was based on work with computers and also involved the learning of a computer programme, it was important to see how experienced the participants rate themselves in handling a computer.]

5. How often do you use the Internet per day?

- <1 hour
- 1-2 hours
- 2-3 hours
- 3-4 hours
- 4-5 hours
- >5 hours

[This question had the same background as question 4. The use of the Internet was explicitly asked for, because the prototype of the EARS II Environment was used during the teaching sessions for which basic Internet use was required.]

6. Have you listened to electroacoustic music before?

[This question investigated whether the participants were inexperienced listeners.]

7. What do you think is electroacoustic music?

[This question gave the participants a chance to guess what electroacoustic music could be. It further served the purpose of validating question 6.]

Questionnaire 2

The second questionnaire was given out at the end of the study in order to track changes in behaviour towards electroacoustic music. This was accomplished by testing specific knowledge of the participants as well as asking about the appreciation of electroacoustic music.

EARS II – Workshop Questionnaire 2

All data will be saved anonymously, but please give your name that I can compare your answers with other questionnaires from you. Thank you.

Name:

Age: male/female

Group. *Please circle*

1 Talkshow Musique concrète

2 composition Musique concrète

3 composition Soundscape

4 role play Soundscape

1.

a) What is your overall impression of the workshop?

[The question intended to find out the participants' general rating of the workshop. The following two sub-questions intended to link the overall impression to specific events. It was chosen for a smiley scale in 1a) following the example of Kopiez and Lehmann's research (2008) that involved children.]

b) What did you enjoy most of the last 5 weeks?

c) Why?

2.

a) What should be different in the next workshop?

[This question was asked for two reasons. The first reason was rooted in the intention to improve the way of teaching in each workshop. Feedback that has been given here, fed back into the delivery of the next workshop. The second reason was to monitor what type of tasks participants enjoyed and which they did not enjoy.]

b) Why?

3. Since you've done the workshop: Do you think, you hear sounds in a different way?

For example, were you more aware of sounds in your environment? Or did you listen to music in another way?

If yes, why?

[The listening change question aimed at investigating conceptual and procedural knowledge the participants had acquired during the case study. Hence this was a crucial question for the research. It was anticipated that the listening training would have an influence on the listening behaviour and that the participants were able to relate this back to the listening training.]

4. What is the difference between Soundscape and Musique concrète?

[This question tested the gain of factual knowledge. The cognitive process needed for answering this task can be classified as 'Remember' (Recognising and Recalling) (Anderson and Krathwohl 2001, 31).]

5. How did you like working with the EARS II website?

Please circle.

- a) I could find information easily.
- b) the texts on the website were understandable.
- c) I enjoyed working with the website.

If you've circled somewhere, could you please write down what we could make better?

[Working with the prototype of the EARS II website has been important for the case studies. This question investigated the users' opinion of the website in order to be able to improve it in future.]

6. Can you remember...

... a composer:

... a piece:

... something that was new for you to learn and surprised you:

[Similar to question 4, this question tested the gain of factual knowledge related to the cognitive process of 'Remember' (especially recalling) (Anderson and Krathwohl 2001, 31).]

7. Would you like to listen to electroacoustic music (music with sounds) again?

[This question asked for the appreciation of electroacoustic music.]

8. If there were a second workshop going into more detail, would you like to take part?

[Although this question specifically asked for the appreciation of the workshop, this was also seen as a question regarding the appreciation of the music. It was assumed that those participants who would not enjoy the music would also not like to attend a workshop about it and vice versa.]

9. Anything else you would like to say?

[This was an open section for any comments that did not fit into the categories of the questions above.]

6.4.2 Listening Response Test

In order to test changes in listening to the music, a listening response task was undertaken at the beginning of the study, before any teaching took place. The participants were told that they were going to listen to a piece of music and that they should write down anything that came to mind related to the music. A piece with a duration of three to six minutes was played to the participants. To track the listening changes the same task was carried out after the study had finished.

The following pieces were used in CS02-04. The pieces of CS01 are discussed separately in the description of the Beta Study.

Case Study	Listening Response 1	Listening Response 2
02	Gilles Gobeil: Entre deux rêves du printemps (1'-ca 6')	Rob Weale: Log Cabin
03	Robert Normandeau: Clair de Terre – Ouverture	Pete Stollery: ABZ/A
04	Pete Stollery: ABZ/A	Gilles Gobeil: Entre deux rêves du printemps (1'-ca 6')

Abstract pieces were chosen deliberately. The aim of this test was to investigate if the teaching had an impact on the perception of electroacoustic music in the second listening response. Collecting responses to a piece that would be straightforward to grasp would make it difficult to relate the change of perception to the teaching during the case studies. Rob Weale's piece, which was significantly easier to listen to, was therefore only used in the beta study and the second case study.

The Listening Responses were analysed following Qualitative Content Analysis (see data evaluation). Each comment was given a code. Participants were not distinguished: the individual answers were combined to a group result which then was compared to the other group results.

Four pieces were used for the listening response tests. The order of the pieces and the pieces themselves were changed for every case study. Therefore, it could be investigated if there was a difference in the answers of the participants depending on the time (first or second listening response).

6.4.3 The Letter Test

The letter test was designed to track the learning progress of the participants. While the Listening Response test and the Questionnaires dealt with the listening experience of the participants and general aspects of reactions to exposure to electroacoustic music. This test focuses specifically on the understanding of electroacoustic music. In order not to put the participants in a situation that is very close to completing an exam paper, the task given was to write a letter, which had to be completed after the teaching had taken place. The task was formulated in the following way:

“Please write a letter to your friend or mum and dad or brother/sister. Tell them that you have been to a workshop about music with sounds. Explain to them what this music is.

Dear...“

It was thought that if the participants were able to explain electroacoustic music in their own words, this would show that an understanding of the knowledge had been gained (conceptual knowledge rather than factual knowledge). It turned out that those letters which derived from this task were a very useful instrument to prove not only the learning progress: they also highlighted the personal opinion of the participants by causing them to reflect on the workshop. Hence the question of appreciation of electroacoustic music became important in the evaluation of this test. The letter test was analysed by using Qualitative Content Analysis. The letters offered different possibilities in coding, because, unlike in the Listening Response Test, the participants wrote whole sentences. Therefore the results were clearer and less ambiguous.

6.5 Methodology of Evaluation

The data collected for the EARS II (P) study have been evaluated following the rules of Qualitative Content Analysis (QCA), which will be described in the following paragraphs.

1 Aim

Qualitative Content Analysis aims to reduce large quantities of material in order to unlock the essence of the material with the help of summarising the data. From the summary of the data theories can be built, enabling the researcher to discover new elements and possibilities to interpret the data. The method is therefore suitable especially for open-outcome and explorative research. According to Uwe Flick “the method is not limited to a particular theoretical background” (Flick 2009, 328). However, “it is mainly used to analyse subjective viewpoints [...] collected with interviews” (328). Despite this, the method has been useful in both the analysis of the letters and the listening response analysis.

2 Procedure

Data is summarised by applying codes to the chosen material. This reduces the quantity of data and therefore eases dealing with large data sets. Philipp Mayring devised a model of the process of general content analysis:

The first step includes defining the material which will be analysed, followed by an analysis of the situation in which the material was produced. After a formal classification of the material, the analysis starts with a theoretical differentiation of the research questions. Then the route of three different analytical techniques can be followed: Summarising Content Analysis, Explicative Content Analysis and Structuring Content Analysis (Flick 2009, 324). After the analysis the interpretation of the result finally needs to be put in relation to the research question. Reassessing the chosen method after the analysis of about 15-20% of the material is also important (Mayring 2004a, 472).

3 Advantages and limitations of this method

QCA is flexible and can be applied to a broad variety of data (media data as well as interview data). Further, the method is logical and structured which means that the process of analysis is straightforward (Mayring 2004a, Flick 2009, 328). However, Flick mentions also limitations of the method. A problem of Summarising Content Analysis is that it paraphrases the material, which means that at some point the original text of the material will not be worked with anymore. In order to avoid this in the EARS II (P) study, the full material has been always in sight during the analysis process as well as in the write up of the interpretation.

4 Procedure in the EARS II (P) study

To avoid problems with panel mortality³⁵ individual opinions or developments were not followed up. Instead, the data set of one class was investigated as a whole.

As the EARS II (P) study was designed with an open explorative outcome in mind and provided a huge amount of data, the method of Summarising Content Analysis was ideal. The data was coded following a meticulous process. The reduction of the material was done in two steps: In the first reduction “less relevant passages and paraphrases with same meaning [were] skipped” (Flick 2009, 325). In the second reduction “similar paraphrases [were] bundled and summarised” (325). Although a reduction took place, the full data was always kept accessible for the researcher and the reader.

Flick states that “one of [Summarising Content Analysis]’ essential features is the use of categories, which are often derived from theoretical models: categories are brought to the empirical material and not necessarily developed from it, although they are repeatedly assessed against it and modified if necessary” (Flick 2009, 323). However, Mayring says:

³⁵ I.e. that not all participants are present at all points of data collection.

“If the research question is very open, or the study is of a markedly exploratory character and would also be hampered by an inductive formation of categories or incapable of conclusive, theoretical justification, then more open procedures would be more appropriate, such as those found, for example, in grounded theory [...]. In any case, it is also possible here to think of combinations that bring together, in individual stages of research, both more open and content analytical procedure” (Mayring 2004b, 269).

This can be seen in the EARS II (P) study. As this study is highly explorative and does not build on existing theoretical models from which codes and categories could have been adopted, the coding process utilises a mixture of tools from Grounded Theory and Summarising Content Analysis. The entire codes derived exclusively from the material by paraphrasing.

Hence, the actual analysis process followed strictly Summarising Content Analysis: the first step was to read through the data sets, then apply codes to each passage/interesting part of the data (first reduction). Every time a new code was applied to a section, the previously coded sections were double checked to see if the new code would be relevant there too. In the second reduction it was aimed to build code families in order to be able to summarise the codes as well. Finally, categories were built from the codes which allowed a summary of the codes and code families (see Mayring’s model of Summarising Content Analysis in Flick 2009, 326).

The program TAMS (Text Analysis Markup System) Analyser³⁶ was used in the analysis. This open-source program has been designed in order to analyse large texts and to apply codes to different text passages. TAMS was originally developed and applied in ethnographic studies, but can also be used in discursive studies. The program was used to apply codes to the data, to search for codes and to create excerpts from the data (for example all passages that have been coded with a specific code).

The above shows a discussion of the methodological decisions made in regards to the EARS II (P) study. The next chapter will introduce the study and the evaluation of the data in greater detail, starting with a description of test phases 1 and 2. Afterwards, the chapter will discuss the third test phase.

³⁶ <http://tamsys.sourceforge.net/> (22/04/12)

7 The three Test Phases

7.1 EARS II (P) and user-centred design: Test Phase 1

This chapter documents the first step of the user-centred design approach upon which the EARS II (P) environment has been developed. User-centred design “offers a methodology for ensuring designs are effective by closely matching them to user expectations and needs, based on user requirements analysis and testing” (Brown 2007).

Brown describes further: “User-Centered Design (UCD) is a user interface design process that focuses on usability goals, user characteristics, environment, tasks, and workflow in the design of an interface” (Brown 2007). The interface of the EARS II (P) environment has been tested for usability goals in terms of navigation and design. The results of this investigation were then used in order to improve the EARS II (P) environment.

Brown points out:

“Implicit in this approach is the idea that what the final product should be able to do is both knowable in advance and measurable. By being able to measure typical user responses to successively more sophisticated design drafts, we can adjust the design to accommodate user requirements as closely as possible” (Brown 2007).

He then continues with regard to museum websites: “Therefore, providing we can specify the intended learning outcomes of museum Web sites, user-centred design should enable us to predict with some confidence how well the final product will perform” (Brown 2007). This can also be applied to the EARS II (P) Environment.

The first of the two user-centred design tests was carried out in November 2008. As stated above the purpose of this test was mainly to validate the design and navigation of the website. This way it was possible to exclude that technological or simply design issues would have a negative influence on the learning process.

7.1.1 Participants

A focus group was formed comprising four participants (two male (P1 and P4), two female (P2 and P3)), aged between 12 and 13³⁷. All of the participants were musically trained to a high level, as they were members of Leicester Cathedral Choir which includes regular performing and rehearsals up to four times a week. The test involved the participants designing their own website and giving feedback on navigation and design of the EARS II (P) website draft. Therefore, the participants' previous musical training had not been an advantage. All participants stated they had intermediate computer skills and were average users of the Internet. They were not, or only a little, experienced in using e-learning. Mentioned e-learning portals were mymaths.co.uk and school-intern learning systems. The Internet was mainly used for searching for information (involved in some coursework for their schools) or for social networking, such as msn or Bebo.

All interviews took place in individual meetings to ensure that the participants would not influence each other's opinions. A lot of laughter and jokes during the interviews and when solving tasks shows that all participants seemed to enjoy the activity. The participants showed a particular interest for the topic; this was expressed in questions during the test as well as in comments when I met some of the participants again in a different context. (Even in 2011 I still got questions about it.)

7.1.2 The Test – Aims, Methodology and Structure

The aim of the first test phase was to investigate if a) the navigation of the website was understandable and b) the design was appealing to this age group. Another aim was to get a feeling for the participants' understanding of the learning content in order to improve the further development of tutorials.

³⁷ Small focus group testing is a normal procedure in usability testing. For more information see (Turner *et al* 2006).

The methodology of the test phase was based, in part, on ideas from rapid prototyping (sketching user experience) and methods that enable participants to enhance creative ideas (fantasy phase from future workshops after Robert Jungk and Norbert Müller (1987)).

The test consisted of three parts:

1) Fantasy Phase

In order to get an impression of the favourite designs and features of the focus group, as well as to collect ideas, the participants were given the task of designing a website (with pens and paper) which would explain their favourite music to their peers. To enhance and boost creativity and to avoid mental blocks caused by possible fears of not being able to program or to draw, the task was formulated as follows:

Imagine you were a famous web designer. You are able to program everything that is going through your mind, even if it doesn't exist yet. You have as much money as you want so you can buy all things you cannot imagine to program yourself. Your task is now to design a website for people of your age to explain to them your favourite music. Here are pens and paper, so you can draw your website. You have 10 minutes for this.

Although a time restriction had been announced, this was simply for the reason that the participants would clarify their thoughts quickly. In the end the participants got sufficient time to finish their draft. When finished, the participants explained their pictures and how this imaginary website would work if it were "real".³⁸

2) Rapid prototyping

In the second part the participants were shown seven pictures of the website. These pictures were drawn by hand and showed the basic navigation through the page as well as the structure of the tutorials and some of the content. The advantages of this paper-based approach are that the test material can be created and changed quickly. Furthermore, no technical equipment is needed which also meant that there would be no faults due to technology. The

³⁸ P2 did choose not to draw. Instead of drawing she described an imaginary website.

participants were told that their answers were neither correct nor wrong and not understanding something only meant that the researchers had to make some changes at that point.

All of the pictures had different character. Some of them were plain text pages and some of them included mocked up features, such as listening to a sound file (which was played back from a computer while the participants were looking at the picture). Another page showed a room where the participants could “click” on objects. After doing so, an explanation appeared on screen. This was simulated with another layer of paper which was laid over the original picture. The pictures can be found overleaf.

For each picture the following questions were asked. 1) “What do you think this website is about?” and 2) “What can you do on this website?” The participants looked at a selection of pages, which followed a route beginning at the homepage and leading to a tutorial about soundscape music. On the way the participants completed parts of the soundscape tutorial as well as a short part of the listening tutorial. The questions focused on the navigation (the movement and flow from page to page as well as the paths within a page) and the design (the construction of each page).

The following pictures were shown one after another:

EARS II: pedagogical ElectroAcoustic Resource Site

MUSIC, TECHNOLOGY AND INNOVATION RESEARCH CENTRE AT DE MONTFORT UNIVERSITY



Figure 7 Test picture 1



Figure 8 Test picture 2

Home
About
Curriculum
log in / off



Soundwalk Hildegard Wechsung
Recording
trains and planes ...

→ **SOUNDSCAPE**

Pierre Schaeffer Listening
→ **MUSIQUE CONCRÈTE**
music with trains and planes...

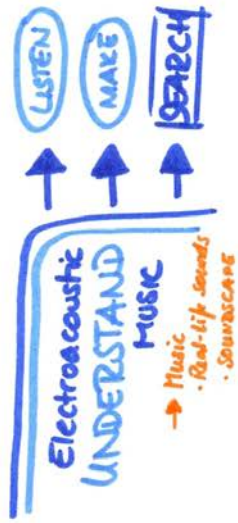
Turntablism
→ **HIP HOP** New York
DJ Sample



Figure 9 Test picture 3

Home
About
Curriculum
log in / off

new sounds | pop music | musical systems |
real-life sounds | generated sounds |
Composition techniques



Tutorial: Soundscape Music



Figure 10 Test picture 4

Home
About
Curriculum
log in / off



Soundwalk

Put your headphones on and listen

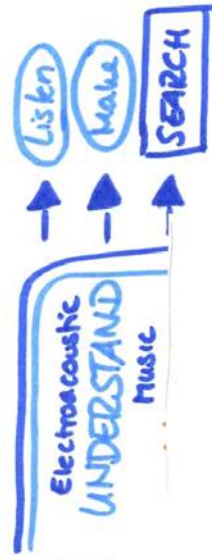
show text

Back - How to: Recording - Listen to Soundwalks

Figure 11 Test picture 5a

Home
 About
 Curriculum
 Log in / off

new sounds | pop music | musical instruments
real-life sounds | generated sounds |
 composition techniques



1. A soundscape composition is a piece of music which contains only real-life sound. The sound of a car or human voices or the song of a bird, these can be musical material as well as the sound of doors, water or weather.

To train their ears and to get new ideas many composers are doing soundwalks. This means they are going for walks and listening actively to all sounds that occur. Most composers record their soundwalks, so it is also a way to collect new material. Everything that is recorded can be used later to create a new sonic environment.

To create a sonic environment, or a soundscape composition, the composer copy their recorded material to a computer and select the best sounds. After this, he or she can edit it and combine it in new ways. This can sound very different, like this [...] or like this [...]."

Back - How to: Recording - Listen to Soundwalks

Figure 12 Test picture 5b

Home
About
Curriculum
log in / off

Acoustics / Nine types of sound / Dribbling
listening / notes / performance

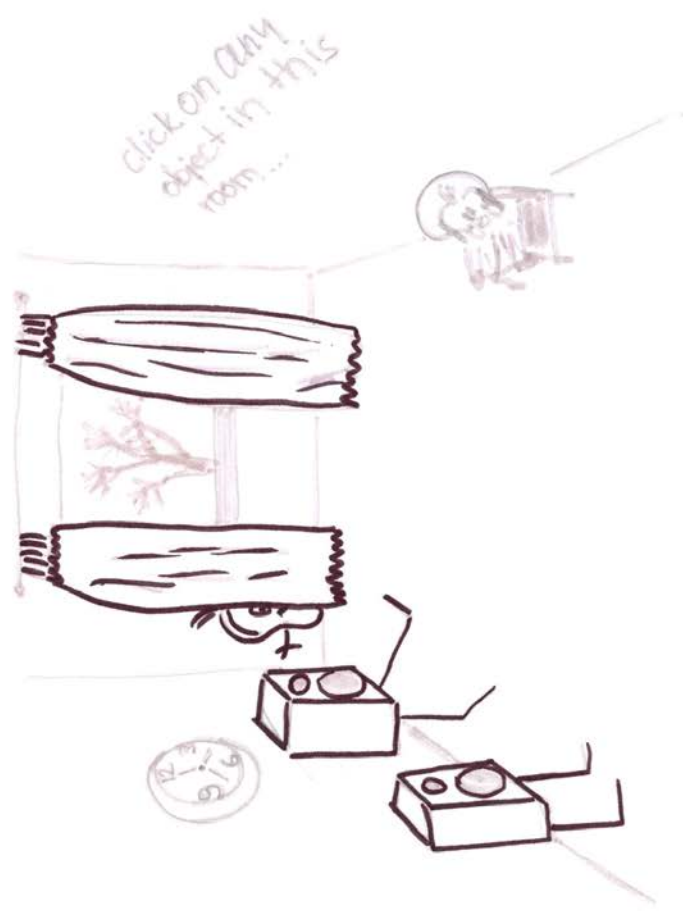
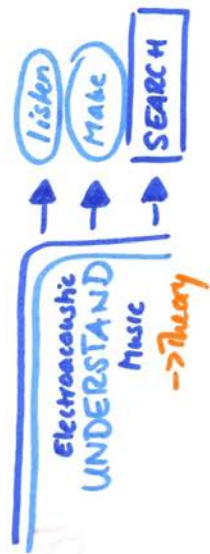


Figure 13 Test picture 6a

Home
 About
 Curriculum
 log in/off

Acoustic / five types of sound / Dictionary
 listening
 Acoustic / same / performance

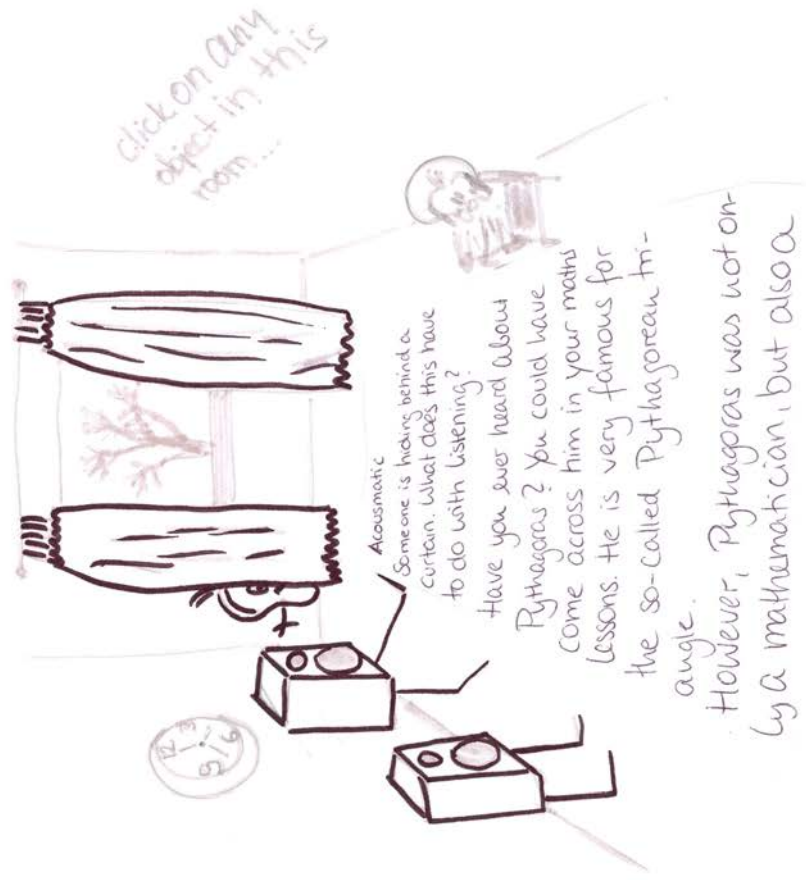
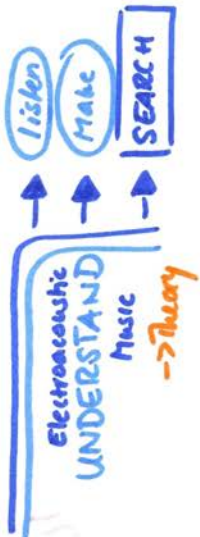


Figure 14 Test picture 6b

3) Questionnaire

The last part of the test involved a standardised interview following a questionnaire, to acquire general data like age, sex, school year, as well as online behaviour (use of the Internet, favourite websites), familiarity with computers, musical training and general interest in music. The questionnaire also asked for previous experience with e-learning and online learning environments. The answers from the questionnaire that were important to understand the participants' reactions better have been introduced in the description of the participants at the beginning of this chapter.

7.1.3 Results

7.1.3.1 Fantasy Phase

The three participants, who had completed the task³⁹, showed different approaches⁴⁰.

Participant 1

This website draft concentrates more on the pedagogical structure than on design features. The design focuses on the use of colours, however all of the content has been clearly laid out, so a clear navigation is visible. Links to "homework tips" and "school work" suggest that this website focuses much on learning. This could be a website for any subject; the requirement of the task that this should be music website does not stand in the foreground. The idea of dividing the content into three age group sections is also interesting.

Participant 3

While the picture of P1's website draft was plain and organised, this picture can be described best as a colourful but creative chaos. This participant has not bothered with creating a general navigation for the website. The focus is the idea of a social network side with the aim of making friends.

³⁹ The views of P2 are added at the end of this section.

⁴⁰ The pictures can be found overleaf.

Participant 4

P4 was the only participant who thought about the deeper structure of the website. A clear focus on navigation, design and content can be seen. This is the most advanced draft of all the participants. After the homepage, he went into more detail by creating two more pages: one containing an explanation of the piano and piano music and another one dealing with composition and recording.

Participant 2

P2 did not draw a website, however the ideas of this participant have been taken into account in the general discussion of this test part below.

P: And well it'd be good if I had pictures of what reminds me of the music and how it expresses me and if the pictures could be 3D.

M: Mhm.

P: So you could, sort of like a projector and you could see all the different notes and all the different phases that the person has done to create the music.

M: Mhm.

P: So you could, maybe you could do it yourself if you had the equipment and you owned a computer. And it could sort of give you things out of the computer. So if I really like the piece of music because it sort of has different volumes and stuff and you could control the volumes to how you like. Stuff like that. And it wouldn't be on a computer 'cause I don't like computers.

M: Mhm.

P: It would be, it could be in a book so if you opened a book then it would sort of be in a book 'cause I like books and computers are just confusing.

M: Laughs.

P: And I could decorate it with whatever I wanted and then there could be a program so you could do it to your favourite music.

M: With what would you decorate it?

P: Uhm you could decorate it with any type of colours and borders and if you see something that you really like. Sometimes I see things and I don't know how to draw it or write it. And you could sort of just take a picture and then put it onto it and make it larger or more of it.

M: And what colours would you like on it?

P: Uhm my favourite colour is lime green and sort of pinky and blue so maybe have stripes as well and then have the music notes and then try different phases to how they made it on yeah. And how, why I like it, like the reason 'cause it's relaxing or live music it helps me. Sometime music helps me work and I've got homework, stuff like that so yeah.

M: And what will be on the website, what can you do on?

P: Well it would be on the website and then you could sort of pull things out of the screen like books and then all the different notes. And then it would just be like a really easy thing to remember instead of typing www dot (2:56 Not understood word).

M: Mhm.

P: it'd just be like a word or a letter

M: Mhm.

P: That it would just come up with and uhm you wouldn't like have to have a log in number or anything it would just like be there. And it wouldn't take very long to download even if you didn't have broadband. 'Cause that's a bit annoying if you don't have it. But yeah" (P2, thoughts on own draft of website).

KIDS web.com

- 9-11 activities
 - Puzzles
 - Character profiles from TV
 - word-search
 - Look for your fav. music
 - Easy School-work
- 12-14
 - Games / puzzles
 - Find out a bout your city
 - Fav. music
 - Home work tips
- 15+
 - Live chat room
 - Links to websites
 - Difficult puzzles
 - Fashion

Figure 15 Participant 1 website draft



Figure 17 Participant 4 website draft 1/3

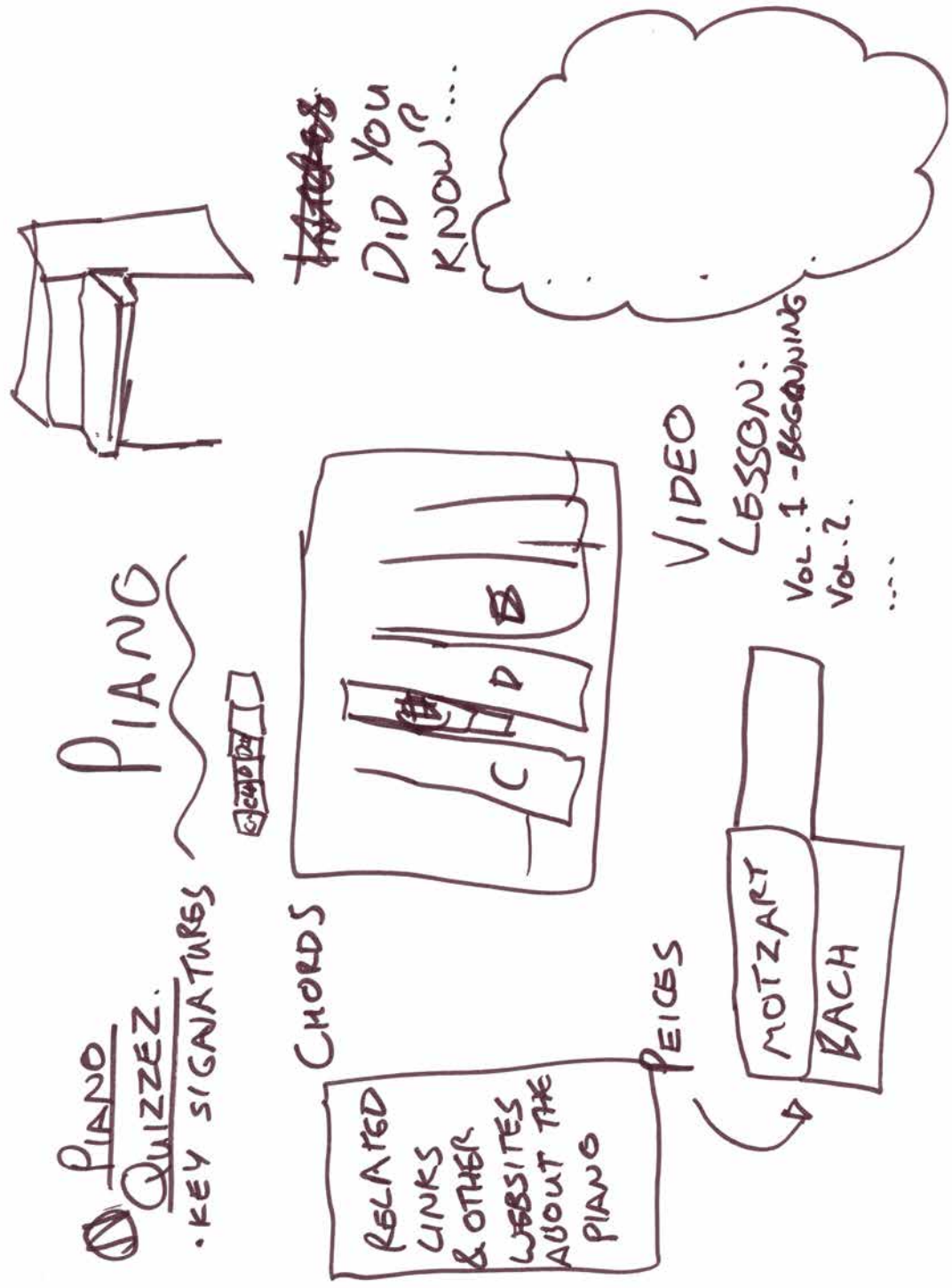


Figure 18 Participant 4 website draft 2/3

Compose

Record

SET TIME:

SEND IN P.
Your OWN P.

DOWNLOAD YOUTUBE

URL:

HTTP://

BLOG

PLAY



'JAMES' SONG

RATE



Figure 19 Participant 4 website draft 3/3

Interpretation

After the participants had finished their drawings they explained the main features of their website. Summarising the participants' ideas it can be said that the suggestions and ideas covered the following web features and pedagogical aspects⁴¹:

Features

- Play music
- Music download
- Search function
- Chat
- Should be possible to personalise
- Working with visual aids
- Easy to use
- Possibility to rate music
- Link list

Pedagogical aspects:

- Age division
- Learning should be fun: puzzles, games, quizzes, young language
- Integration of an online course and
- Video tutorials
- Making music together: "Cause I thought it's a way of like making friends and then have them for music stuff" (P3).
- Self-directed learning
- Receiving feedback on own compositions

A number of items of the above list have been implemented in the current system:

- Making your own music
- Explanation of how to compose a piece of music
- Information on composers
- Play music
- Search function⁴²
- Working with visual aids
- Easy to use
- Quizzes
- Having a course online

⁴¹ P2's suggestions have been taken into account here.

⁴² In the wiki version used in test phase 2, but for technical reasons not in the EARS II (P) environment.

- Make music
- Video tutorials (in form of animations)
- Self-directed learning

Two participants imagined their website as being a social network:

“You can put, you can like make your own page up so people can look on your page, and uhm you add your own photos, you can put movies of you singing like and like you can connect your phone to it and everything so like you can like put stuff off your phone on it. Uhm I thought you can put MSN on it and your email address so like you can send people messages about music and everything. And then I thought that you can just like play music on it as well, like classical and pop music and stuff. And then I wrote uhm like there's a discussion board where you put your own discussions on any music. Then I thought, I don't know if you'd be able to do this but I wrote, you can like make up your own interview to send to an artist you can and then try to send it and see if they reply. [...]

And then you can put like, you can ask people to be your friends and then you can put them on like, say if they reply and say they want to be your friend, then you put them on the list and you could just like connect with them sort of thing, [...]

And then start making your own music with them, together. And like then, then, if if they reply as being your friend then like you can always like - only if they reply as being your friend then you can like send eachother your phone numbers and text eachother with uhm stuff about music. [...]

'Cause I thought it's a way of like making friends and then have them for music stuff" (P3).

[...] you could uhm send in there could be like a music blog and so you send in your music and people will rate it. [...]

And so you could record your own music or do it on the actual website. And you could uh download music from uh Youtube. And then it would have a box with http and then you'd write in the URL and then yeah. And you have it play with this button these. And then you could click on the stars to um and then they'd have get colour in them become coloured and then yeah that's how you'd rate the um song" (P4).

As the last sentence of P3 shows, making music together seems to be important for making friends, especially in the first quotation. This is an interesting aspect. The social impact of working in a likeminded (online) community has been reflected well in publications regarding building online communities (Palloff and Pratt 1999) and general discussions of using online learning in schools (Savage 2008). As for this PhD the development of the learning content was in stronger focus that the development of a working environment, this route was not followed. However, the possibility to integrate the EARS II (P) Environment with Facebook or Bebo could be thought of for future development stages.

7.1.3.2 Navigation and Design

In the following the results regarding navigation and design are summarised. To support this, those quotations were selected which best proved the findings. The quotations can be found in their original contexts in the transcriptions of the interviews in the appendix.

Navigation

No problems occurred when looking at the navigation. The participants recognised and understood features of the pages as well as the main navigation:

One participant emphasised especially the link system (breadcrumb system) that allows the user to go back at any time as well as to see the current place where they are at:

“Oh and the link’s good as well... so you can see, you can go back to different places... and that’s good, so you can go to different places as well” (P1 on links).

“[...] and the different links as well, so you can go to like the music and the technology and the theory parts as well... [...] well, it has got the links to everything as well, which is probably gonna be on every page, which is good” (P1 on links).

And also another participant commented on the breadcrumb system:

“That’s good 'cause sometimes you get confused on how you got there and how you get back” (P2 on links).

The participants were able to conclude as to the content of the web pages from the pictures. P4 summarised the second of the test pictures as follows:

“It’s about the history maybe. It has a timeline at the bottom. History of music and then so all different types music. Yeah but that might be wrong. Telling you about the- all the different types of music. Yeah new electrical instruments I think. Oh yeah, sound manipulation so it could be like a pitch bend on a keyboard or something of different effects you could do” (P4 on picture 2).

Although the expectation of learning about “electrical instruments” does not exactly meet the content of the deeper levels of the learning environment, there seemed to be no problem for them to understand what each website page is

about. P4's attempt to make sense out of picture 3 is another good example of that:

"Concrete is a type of music. [...] So you have like different- the times about the time and it will tell you about yeah tell you about the musique concrete. [...] Hildegard Westerkamp uhm is that a composer? [...] I'm guessing that soundscape is another- is a whole genre" (P4 on picture 3).

As can be seen in the quotation above the participant understood just from the way the information was presented, that *musique concrète* and soundscape are genres and that Hildegard Westerkamp might be a composer.

Picture six also was understood quickly and without any problems: "Umm would you just be like say if you click on that ear hiding behind the curtain and that little speaker will it tell you how the sound travels or something?" (P3 on picture 6) About the same page another participant said: "I think like everything in this room shows like how things are projected to your ears" (P1 on picture 6)

When the navigation was unclear, this was the result of one of two problems:

1) The participants did not know a word:

"Well it is like... kind of figure out, what EARS II is all about, is it EARS II? [...] yeah, and eh seeing what people like to listen to... eh... seeing what kind of things they teach ... all about technology and things... and like, it has a user name for people with log-in..." (P1 on picture 1).

"Uh the words are too long. [...] I really don't know what any of them mean. I think it's like what you're meant to click on" (P2 on picture 1).

"(Reads) Music with trains and planes was that before - I'm confused. You get to listen to music? I don't know what 'music concrete' is. But I'm sure it'd be good (laughter)" (P3 on picture 3).

P: eh Hildgard Waterkamp, Westerskamp

M: Westerkamp

P: ... ooh, I don't really know, what that means...

M: It's her name

P: oh /M: It's just a name (both laugh)... phew (laughs)" (P1 on picture 4).

2) The participant's anticipation of being offered explanations about a certain type of music. The participants were classically trained singers, so the idea that the website would deal with choral or classical music was not unexpected⁴³.

⁴³ Besides the participant knew me from the choir, so they connected me with the world of choral music.

However, the participants clearly “sensed” that this learning environment offers something different from “normal” music:

P: and eh... I think it's music especially (? 33:34) just try to educate children about different types of music... and like, basically everything about music, but not like songs in the charts and things like that, just, how it's used, projected and lots of things like that...

M: Do you think, you find something like, eh, we sing in the choir?

P: ja

M: and do you think you find something like you're playing on the piano?

P: on the website?

M: ja

P: eh, I think there is probably a link somewhere about eh choir sounds... I think it probably has things like Chinese music, Indian music,

M: mh

P: and like choir music, you can listen to a sample of that, and (? 34:17) piano pieces, but not no things like popsongs or rock songs in the top charts” (P1 on general impression of website).

As a result, some of the words have been changed: For example, the problem that participants did not recognise that “Hildegard Westerkamp” is a name was solved by changing it to “Composer: Hildegard Westerkamp”.

Design

Within the comments regarding the design, the colour-coding was highlighted especially positively: “Yeah and the colours are good 'cause it's all colour-coded and it'd be better maybe if these were actual the colour of that” (P2). Suggestions for the design specifically requested to change some of the words, which links to the findings regarding the navigation:

“whatever that is to describe it, it's a bit long. It'd be easier if maybe it were shorter and maybe lined or in a snappier- [...] That would actually be quite good if it was a bit easier to sort of- some times it's easier to know sort of what they are like words like but that's a good idea” (P2).

“you could like have it in different type or like changing the words and make it like more interesting like. [...] And make some words bigger than others” (P4).

The design of the learning environment caused spontaneous affection as the reactions to picture 6 show:

“(Gasps) sorry that's just a cool picture” (P3 on picture 6a).

“M: So uhm you get the text then a little text uh this one and it comes up so the idea - this is the wrong text now but the idea is that it comes up like on the floor so it sort of goes away.

P: Oh that looks good” (P3 on picture 6b).

“But I like the picture. It's really funny” (P2 on picture 6).

Content

After completing the discussion of the website pictures, two questions were asked “What is a sound walk?” and “What is acousmatic listening?”.

The participants were not aware when starting the test, that they would be asked questions about the content at the end. However, although the two male participants⁴⁴ struggled to answer the questions, the two female participants answered the question without major problems. In fact when hearing the word for the first time P3 was able to conclude from the term “soundscape” to the correct definition:

“Soundscape. Hey that'd be like a landscape except with sounds. Would it? Like creating a picture in your head but using sounds. Like say a sea sound to make a sea and then that would be cool. That would be well good” (P3).

When asked to define the term ‘soundwalk’ she answered:

“Is it like say you walking... so it's like you're walking past all the sounds and they were just like you know... come into your head and that sort of thing... So say you're walking down the street like it's like you're listening... it's just like you're walking down the street so you hear all the sounds of the street...” (P3).

P2 defined ‘soundwalk’ as follows:

“A soundwalk is when a composer or someone who... anybody uhm go for a walk and just sort of records it and then sort of listens to all the different things like cars or birds and all the different things in the environment and stuff so he can use it... they can use it in their work” (P2).

The second question P3 answered:

“P: uhm, isn't, is that, is that when you are behind the curtain?

M: ja

P: ja? And like say, say you can't see what you're hearing... so you're just like listening to it. It's that what music is though, isn't it?” (P3).

The participant remembered the definition of acousmatic listening by remembering the design of the website. This shows not only that the pedagogical structure enables learning but also that the design supports the learning process.

The picture of the curtain was also helpful for P2. Although her definition was not correct, the picture would have helped her to go back and to re-read it.

⁴⁴ Who probably focused more on the navigation and design than on the actual content

“o ja, it is about this man and he was really important or something. And some people are allowed to listen to his music and live with him and other people weren't. I don't know whether which group of people, but they used to hide behind the curtains, because they weren't allowed to watch and or something that's where it comes from and it helped with the picture ... ja ... I think...” (P2).

7.1.3.3 Summary

In general it can be said that the participants were able to understand what each of the pages was about. They gave valuable feedback which has been taken into account for the further development stages. They also liked the website, which is an important factor if this environment shall appeal to the target group.

Especially the soundwalk audio file was appreciated by the participants:

“I didn't actually know what soundwalk was and then I know what it is now because it explained it well and it was slow and clear. And uhm I didn't know that that's what composers did, they went for soundwalks. That literally is a soundwalk and they recorded it so I learned a thing. And it sort of yeah, it was good because they showed you different ways how they use them. Yeah that was good” (P2).

“I think it explains it very clearly and slowly, so that everything can be taken in, e – except all at once, which can get confusing. Eh but I think one down of it was eh the reader was a bit... not very... completely easy to listen to... [...] I think it was just really I think the reader was sounding a bit dull and it wasn't really engaging” (P1).

“Yeah it's really good. Uhm he's speaking quite slow and it's helping me like take in all the information. And yeah I like that the music's playing in the background and then giving examples of the music during the interview. It's really good. Yeah it creates really good atmosphere, it's like I can't really think of any criticisms, it's really good” (P4).

“I like this. It's cool. Like listening to anything. Are they opening doors and closing them with keys and stuff. It sounds like it's going through your head! That's well cool. It feels like you're actually there, it does. 'Cause it's like go through straight for your head. It's so nice, relaxing. It's just like you're walking through a street or something and you're listening to it all. I think you should have like loads of different sound walks, like a spooky one, and - yeah. It's like you're outside though and the winds blowing and everything. I just love it it's so cool. This is a well good idea. Could you do it yourself like 'cause you put all the sounds into the computer will it be like on the website to be able to you know put it like, make your own soundwalk and then yeah, that would be cool. It's spooky now! (laughs). Have you done that thing where you put like one sound in one ear and it goes through the other ear? 'Cause that makes it better” (P3).

The feedback and ideas of the participants have been taken into account for the further development stages of the environment. The general structure has been kept. Due to technological limitations the breadcrumb link system could not be retained. However, the positive reactions of the participants should be taken

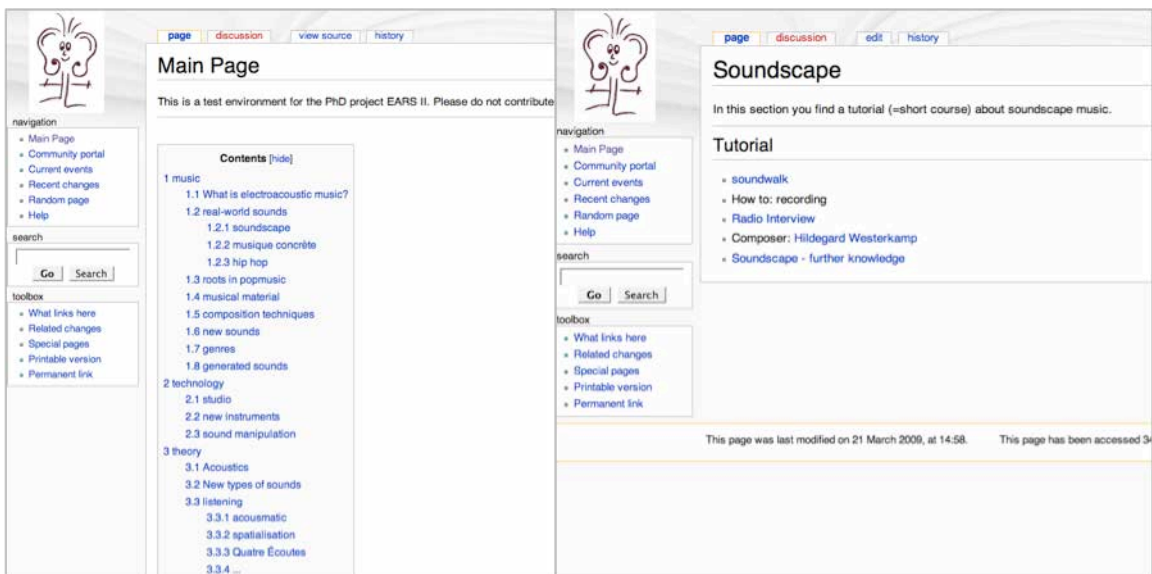
into account for any future version of the environment. Changes have been made in particular to the start page, which now looks very different. On all pages the attempt has been made to avoid words that are too long or cannot be easily understood. New quizzes and games have been added after the interviews as it became apparent that these would be attention keeping: “Oh cool! I like the picture, I think it's cool. (Reads) Explore, play...do get to play games? Games are the best!” (P3 on left-hand navigation in picture 3).

7.2 Development of the Prototype Second Stage: Test Phase 2

The second part of the user-centred design testing focused on the content of the curriculum detached from navigation and design. In order to allow the participants to have a “neutral” impression and not to be influenced by design or navigation (in positive or negative way), the content was uploaded to a Wiki.⁴⁵

Figure 20 Homepage of EARS II (P) wiki

Figure 21 Start page of a



Tutorial

A wiki is a system that allows content to be changed quickly and easily. The possibility of allowing the participants to change the content – or the formulation

⁴⁵ *Media wiki* software combined with flash-based audio players was used.

– (or to change it straight away for the participants) where needed was thought about, but it turned out that this function was not needed (see interpretation later in this chapter).

The tested content included tutorials about soundscape music, *musique concrète* and hip hop (as an example of popular sampling culture). It introduced reduced listening as well as the composers Hildegard Westerkamp and Pierre Schaeffer.

7.2.1 Aim of the test

This test phase aimed at validating the level of the content delivered within the EARS II (P) curriculum. Making a universal statement as to the level of the content was not the aim. Instead, the test gave an overview, which would show whether adjustments and refinements would be needed in the further development of the curriculum.

Research question: Is the level of the content and the content itself understandable for 11-14 year olds?

7.2.2 Participants

For the same reasons as in the first test, this test was carried out with a small number of participants. Three participants aged 12 (female), 13 (male) and 14 (female) took part. Participant 1 also participated in the first test phase (where she was called P2), which enabled her to compare both versions.

7.2.3 Structure of the test

The test consisted of three parts, two of which were done in the test session; the last part had to be completed at home ensuring a timely distance from the first two parts.

The first part of the test ensured all participants are at the same state of knowledge. The participants had to complete the tutorial “What is

electroacoustic music?” on the Wiki. The tutorial aims to familiarise the learners with the idea that all sounds and all music have different pitches and rhythms and introduces the learners to electroacoustic music. It questions the term music and aims to widen their definition of music.⁴⁶

The second part of the test involved the completion of a quiz, which contained 10 questions. The quiz was created in such a way that it would be fun but at the same time retain the interest of the learner. This picked up on results from the first test phase, where the quizzes were identified as good teaching tools. The questions were multiple-choice questions, short riddles or research tasks. Each question provided the participants with hints that led to the tutorials on the wiki. The participants needed to complete those tutorials in order to be able to answer the questions. The quiz can be found in the appendix.

The third part of the test included a short test consisting of six questions. The participants received the instruction not to look at the test before the next day. They were further not allowed to use Google or other sources, as the test should be completed with their own knowledge. This way the learning success of the participants following working with the EARS II (P) curriculum could be recorded. The answers were sent back by email or given back to me personally.

The test was video-taped and parts of the participants’ comments/reactions have been transcribed. The participants were instructed to act as if I were not in the room.⁴⁷ They also were asked (and sometimes reminded) to “think out loud”, which means that they should say every thought they had while dealing with the content on the website.

7.3.4 Results

Reactions to the quiz (observation)

⁴⁶ This tutorial has not been used for the final version of the curriculum, although it has been used in the case studies as well. This decision was based on the problem that occurs as soon as one questions the term music: the learners are more engaged with discussing why this genre could not be called music instead of trying to allow experience of something new.

⁴⁷ As the sound player in the first and second test did not work I had to press play on my computer, therefore there was communication, but the main part of the quiz was done independently.

All participants answered questions one to nine without difficulties, but each of them struggled to find the answer to question 10. The reason for this was that question 10 demanded a different way of working, such as using the search function. Due to the structure of the first nine questions the participants had been trained to follow the hints and links, so they struggled to find a way to find the answer. When pointed to the search function they found the answer without difficulties.

All participants solved the quiz different ways. P1 was very thorough. She searched for all the answers and when she had found them she went back to the quiz question in order to continue the test. In contrast P2, once in a tutorial, completed all tutorials and then was able to answer a number of questions without following the hints. P3 was more concerned with answering everything quickly, so she skimmed the information and gave a few wrong answers, which she could correct after she read the information more carefully.

First Reaction to Electroacoustic Music⁴⁸

When listening to the first piece of electroacoustic music during the test, all participants commented on the music and their thoughts on it, without being asked for it.

Participants 2 and 3 expressed spontaneous affection:

P2 said, “cool” while listening to the piece and when the piece had stopped “I quite like that”.

P3 was not so sure about her opinion towards this music: “Don’t know if I heard anything like that before. ... It’s quite cool though.”

P1 described her the first impression as “scary”.

Understanding of Making Music with Sounds

Participant 1

⁴⁸ In this test. However looking at the reactions it can be assumed that this was their first experience of electroacoustic music.

P1 realised that she had heard that type of sounds before, but showed difficulties in making the transfer from hearing what she called “sound effects” to the fact that there can be a piece of music can be created entirely from those sounds.

“I think they're like artificial sounds, well I've seen them on uhm, on uhm I'm doing it in music and it's actually sounds and they sound artificial, but they sound like birds and stuff. So it's clever how they can use artificial sounds and real sounds and mix them together to make really cool effects” (P1).

She did not believe this was music, as the following quotations show:

“It's not exactly music, because it's sort of... it's sort of, it's sort of music is intended to do something like, well it is music in a ... way, but it's not like ordinary music, 'cause music is intended to like make people feel differently, like happy or sad and it's meant to sort of go with people's what people like to do and stuff. And it sort of isn't. It's sort of helping to describe a scene or something. It's sort of is a type of music, but it's not in a way” (P1).

“It's [the piece by Gobeil, MW] different because it isn't really, it's not like usual, it's not like usual music, where there's like a voice in it or some kind of instruments or some sound, it's more like something like to go with an action to emphasise it more. [...] It is used to make an effect, like you're more scared or sad or happy, but it's not like it can't just be listen to it by itself, it needs something else with it sort of just to give it more a picture like with a sort of moving picture it would help you understand sort of what it meant or it just to help you like what does this bit mean, and this bit. So it is different, because it's not like usual music” (P1).

However, the participant's view changes over the time of working with the curriculum. After finishing the reduced listening training, she states:

“[...] It could be music, because it's a sound ... and it makes you sort of feel or think about something. So I think it could be music, but and it would make it more of a musical thing if it was like in like this DJ thing, if it was incorporated with that. Or if it was like in an orchestra and they added sort of sounds like that or a ... like a car or a bus, then I think it is music, just in a different form” (P1).

She still separated electroacoustic music from ‘normal’ music, but defines it as different genre (“just in a different form”).

Participant 2

P2 seemed to be more open than P1. He has found it “[...] quite interesting learning about how sounds can be music” (P2). When asked if he thought this was music, he answered, “If it has a beat and a little bit of a tune, then yeah” (P2).

Participant 3

P3 did not think she had heard such sounds before, however, she was open to accept this being music:

"Don't know if I heard anything like that before. ... It's quite cool though. ... (reading and responding to the text:) Although people probably don't think that it's music, because... it's most, it's all... done by the computer. Normally music is made by instruments" (P3).

"It's music, but even though it's not made by instruments, but... it's just because it's sounds made electronically so gonna be why people think it's not music, 'cause it's not organised, has different pitches..." (P3).

"It's really fascinating actually how, it's just everyday sounds its like dogs or trains and they can turn it into something that has gone on the radio" (P3).

Reactions to reduced listening training

The following reactions to the reduced listening training show how the participants gradually discovered that sounds consist of many different elements:

Participant 1

"It is a train, but it couldn't be that sound if there weren't other sounds involved in it, because if say something wasn't working on the train, didn't make the sound go, then it wouldn't really sound like a train, in a way, if you know what I mean" (P1).

"There are lots of different components that make the sound like that. [...] But you can also hear different sounds in it. Like if you take out the tsch tsch tsch bit it could sound like any sort of big thing really like an aeroplane or I don't know a boat or something really sort of these engines sort of getting powered up or so" (P1).

"You can hear the different pitches, but they're sort of... it's weird calling them pitches, because they're some sort of low, there're sort of dark sort of sounds and there're really high ones, and they are different pitches, but you would not really think of them as pitches... and the rhythm, well maybe certain parts of it have a rhythm like repetitive or something, but then other parts don't really. So they are sort of separated" (P1).

At the beginning of the test P1 had struggled with the idea that these sounds could be music. However, after completing the reduced listening training she stated:

"It is a piece of music, because it has a rhythm to it, it does have a certain pitch, has different textures. And if you just focus on one part of it or, or different parts of it, then it's called reduced listening, because you're not listening to the whole thing" (P1).

Participant 2

“Ok forgetting that this is a train, you can hear the beat. And in a way there is a tune there dd dd”

“And you have the low pitch, like a bass, and then the beat which is slightly higher. (indicates different layers with his hand)”

“The rhythm is quite fast, and the sample is quite short, but if you play it over and over again, it could be quite long”

“It makes you wanna listen. It’s quite, it’s a lot going on”

Participant 3:

“Yeah it does the higher and lower actually”

“It’s not a very fast rhythm, but medium”

“There’s about two layers, there the train, there might be three the wind, there is the wheels and the track”

“It’s strangely about... not thinking it’s a train”

The reactions to the reduced listening training given above show that participants of this age group are able to understand and apply the concept of reduced listening. The training is therefore suitable and was successfully used in the case studies of test phase 3, hence was kept in the final version of the curriculum.

Participants’ opinion of the name “electroacoustic music”

The participants of the first test phase had commented that some of the words used on the website were complicated. Also, members of the research community have raised concerns about the use of the term “electroacoustic music” with this age group at conferences. Therefore, the participants’ opinions of the term, as well as alternative suggestions, were sought. However, the use of the term did not appear to be problematic:

“I think it’s a good word for it because if it’s if it’s mostly powered by electricity it powered by electricity it has the electro bit in it and then acoustic, acoustic it’s like sounds and stuff. So it does describe it really well” (P1).

“I would call it electroacoustic music” (P2).

“Electroacoustic... I think that’s quite a fitting name, since it its electric” (P3).

General Comments

Participant 1 on her impression of the content

“I thought the information that you gave was good because I wasn't like over complicating and there were easy sentences to understand. But maybe some more information you could have done famous people or people that or certain like maybe a small paragraph about each type of music. You know, like hip hop and then uhm I don't know” (P1).

This participant had taken part in the first test phase as well. Therefore, she was able to compare the two versions of the EARS II (P) curriculum and environment. She liked the suggestion to combine both and added that the first version “was a lot more interesting and I preferred that to this” (P1).

However, she also mentioned that “The word[s] and everything [on the Wiki] is really good, because it is not too boring and not too complicated”. She further highlighted that “the Wiki Website is quite sort of plain and everything. ... So if you did also pictures, maybe like some ... I love the cartoon and the drawings you had ... They were really good, I think you should add them”.

Participant 3 on learning process

“It's really fascinating actually how, it's just everyday sounds its like dogs or trains and they can turn it into something that has gone on the radio” (P3).

Results from third test part (6 questions)

All participants were able to answer most of the questions correctly. The answers the participants had given were marked: For each correct answer, one score was given. If a question required more than one answer (such as two genres) 0.5 marks were given per correct answer. Following this marking scheme, P1 achieved 3.5 out of 6 points, P2 achieved 6 and P3 5.5.

P1's score was significantly lower compared to the others; however, she answered everything with very short sentences that were not very precise. That she also used knowledge that she had from the first test phase was interesting to see. This shows the success of the teaching material.

7.2.5 Conclusions

During this test the participants have been challenged in their understanding of music. In other words: the participants' Zone of Proximal Development has been enhanced while working on the wiki. This is especially apparent when taking into account the results of the third part of this test: it shows that the participants were not only able to remember the content while they were working on the wiki, but also a few days later. This demonstrates learning success as well as that the content of the curriculum is adequate for the age group.

That no difficulties occurred during the test nor in answering the questions later means that the content of the website and the pedagogical form in which it is presented (tutorials) is understandable for the age group. Following these results it was possible to combine the content of the wiki with the design of the environment and to take it into classrooms for "real life" testing.

7.3 Test Phase 3

7.3.1 Introduction

7.3.1.1 Aim of the Study

After the validation of the EARS II (P) Curriculum and Environment, test phase 3 investigated to what extent the curriculum could contribute to the enhancement of appreciation of electroacoustic music for inexperienced listeners.

The key question for this study was: “Does this curriculum provide a successful way to teach electroacoustic music to inexperienced listeners, by using concept-based teaching as a teaching approach?” Subsequently, two aspects were investigated: 1) The knowledge of electroacoustic music gained with the help of the EARS II (P) curriculum and 2) the participants’ change of appreciation of electroacoustic music over the time of being taught the content of the EARS II (P) Curriculum.

7.3.1.2 Structure of the Study

The study was run between autumn 2009 and summer 2010 in the form of a series of workshops. These were offered to schools as a series of five teaching units of between 60 and 75 minutes. Each unit addressed different aspects of electroacoustic music with real-world sounds. The participating schools could choose to run the workshops either consecutively on one day or to spread them over five weeks. All schools preferred to do the latter.

The following overview shows a rough plan of the content of the five lessons. A more detailed lesson plan can be found later in this chapter.

Lesson 1 – Introduction

The workshop started by introducing the participants to the difference between real-world and generated sounds. Using a listening quiz they were made aware of their own listening and finally were familiarised with the concept of soundwalks.

Lesson 2 – A new way of listening

The second unit focused on the development of listening skills. Through a listening training the participants learned to listen for musical parameters of sounds (rhythm, pitch, duration in all schools and additionally timbre in the third school). Sounds were analysed for these parameters in groups and individually.

Lessons 3 and 4 – practical work focusing on soundscape and *musique concrète*

Lessons 3 and 4 involved two learning units, which were run in parallel. Unit 3 was related to soundscape music offering the students the opportunity either to create a composition or to devise a role play. Unit 4 focused on *musique concrète* offering the same tasks (composition and role play). While the compositional tasks focused in particular on the practical application of the newly acquired knowledge of the compositional process, the role play involved a higher proportion of research tasks and challenged the participants to explain what they had learned through the means of role play.

The tasks were based on active, problem-based and collaborative learning (for a more detailed discussion please see chapter 4) and included researching on the prototype of the EARS II (P) environment. The compositional tasks included recording their own sounds and learning to use Audacity (in CS03 and 04). Both teaching units lasted for two lessons. The groups presented the results of the practical work to each other at the end of the fourth lesson and where necessary also at the beginning of the following lesson.

Lesson 5 – finishing off

To finish off the learning process, the participants discussed problems and changes that accompany electroacoustic music. Open questions were addressed and the entire workshop was summarised. In addition, the lesson focused mainly on data collection which included additional listening (listening response test) and individual recapitulation of newly acquired knowledge (letter test).

Additionally, interviews with the teachers of the Beta Study and Case Study 2 were conducted following the fifth lesson. These mainly aimed at improving the case studies over time, thus the teacher of Case Studies 3 and 4 was not interviewed.

7.3.1.3 Participating Schools

Three case studies (and a beta study) were carried out in three different schools throughout Leicester. The schools were contacted by letters and emails sent to the schools and heads of music. The first school, in which the beta test took place, was a mixed ability state school that had just moved into a new building. In the Ofsted report from 2007 it reached the overall grade 2 and is described as follows:

“[The school] has specialist status for languages and internationalism and is considerably larger than the average secondary school. Attainment on entry is broadly average. The great majority of students are from a wide range of black and minority ethnic backgrounds. The proportion of students eligible for free school meals is above average. The number identified as having learning difficulties and/or disabilities is average. The college has had the Investors in People award for the past ten years and gained the Health Promoting School national award in spring 2006. Plans are in hand for the college to be rebuilt in 2008 as part of the Building Schools for the Future programme. The college gained specialist language status in September 1999. The Football Foundation Building, opened in 2006, has greatly enhanced the college's sports facilities” (Ofsted 1, 3).

The Ofsted report further stated that the school “is extremely successful in Years 7 to 9, where progress and achievement are particularly good and lead to above average standards at age 14” (Ofsted 1, 4).

The second school was also a mixed-ability state school. The Ofsted report from 2010 (written a year after the study took place) gives the school the overall grade 1 and describes it as follows:

“[The school] takes pupils from a wide geographical area in Wigston and attracts almost one third of pupils from beyond its catchment, largely from the City of Leicester. The percentage of pupils known to be eligible for free school meals is broadly in line with the national figure. The proportion of pupils who are from minority ethnic groups is above average, although relatively few speak English as an additional language. The proportion of pupils with special educational needs and/or disabilities is above average, as is the proportion of pupils with a statement of special educational needs. The school is a National Support School and Specialist Arts College. It has achieved several accreditations, including Artsmark Gold, Sportsmark and the Inclusion Quality Mark” (Ofsted 2, 3).

The report further outlines that “the school has a proud record of high achievement at Key Stage 3 and has worked hard to maintain and improve its

results” (Ofsted 2, 4). Going on, the report states that the pupils “speak enthusiastically about what they enjoy most”, that they are “confident about what they can achieve and are proud of their individual contribution to the school and its wider community” (Ofsted 2, 4).

As the third school was a private grammar school, an Ofsted report is not available. The atmosphere in this school was very different to that of the previous schools. The school used to be an inner-city school with close links to Leicester Cathedral. As the number of pupils has greatly increased, in 2008 the school moved into a new building, which is located about six miles away from the city centre. Due to the new building the school was able to offer a lot of space to the students and subsequently for the EARS II (P) workshops. The students have to pay school fees which were in 2011 GBP 3,507 per term. Furthermore, although the school defines itself as a mixed ability school, learning level and speed were much higher than in the previous schools.

7.3.1.4 Teaching support

The case studies were quite complex in their organisation. Group leaders trained in electroacoustic music were needed especially for the supervision of the individual groups in the creative part of the workshop. Furthermore, to allow me to have the perspective of an observer from time to time, in case studies two and three the teaching was split between two or three people.

Case Study 2⁴⁹

The workshops for case study two were delivered in collaboration with the Music, Technology and Innovation third year module “Music, Media and Community Arts” (MUST 3023). Every student taking this module needs to complete a placement in a community music setting. Two students (Bobby Hawkins and Brian Trinh) carried out their placement within the study. Further help during the creative sessions, which included mainly supervising groups, came from Sophy Smith, lecturer at the Institute of Creative Technologies of De Montfort University Leicester.

⁴⁹ Case Study 1 was the beta study, which will be introduced separately.

Case Study 3

The workshops for case study three were taught in a team comprising me and Gez McCoy, who was a Masters student at the Music, Technology and Innovation Research Centre at that time. He had previous teaching experience as he also worked part-time as a secondary school teacher. For the creative lessons (3 and 4), two groups were led by second year student Adam Chetty and third year student Steve Morgan, while the remaining groups were supervised by Gez McCoy and me.

Case Study 4

In the last case study, the creative part (lessons 3 and 4) were supported by MTI PhD student Andrew Hill, Adam Chetty and Annelie Nederberg, at that time a third year student of the Music, Technology and Innovation course.

7.3.1.5 Beta Study (CS01)

A beta test (Case Study 01) took place in the winter term of 2009 in order to validate the methodology outlined in chapter 6. It consisted of five teaching sessions of 60 min, delivered in consecutive weeks, including a one week break during half term. The beta test was run at Judgemeanow Community College in Leicester. The head of music at the school advised me to choose a particular class of year 8 which comprised 18 pupils who were not musically trained.⁵⁰ The aim of the beta study was to test the methodology and to make sure that the teaching content was understandable. The study also investigated whether the methodology facilitates successful data collection and evaluation in order for the validation of the EARS II (P) curriculum. The data collected during this beta study was analysed with a focus on this question in order to provide the groundwork for case studies 02-04.

One problem with the beta study was that, although the quantity of the data was quite high, the quality of the data was lower than expected. When trying to answer all the research questions the results offered by the data were often

⁵⁰ Playing a musical instrument was seen as additional musical training to the normal school music lessons. Of the 18 pupils only two played an instrument, therefore the class was not specifically musically trained.

unspecific and inconclusive. However the evaluation of listening response test and letter test resulted in the application of codes to the data, which gave a first impression of what the tests might show. The data allow the conclusion that the methodological framework of the study is successful, although the data itself was not ideal. Some reasons for this will be discussed below.

The investigation of whether the quality of the data was dependent on the knowledge taught in the CS (which could mean that the teaching level was too high or too low), or on other (external) reasons, was important. However, before answering this question at the end of this section, a selection of data will be looked at more closely. The following paragraphs show the analysis of the listening response test of the beta study.

Listening Response Test

As discussed in chapter 6, the Listening Response Test was designed in order to follow the changes of the participants' reaction while listening to electroacoustic music. The participants listened to two pieces and noted their thoughts on them while listening. At the beginning of the first session they listened to the second movement 'Descente au tombeau' of Gilles Gobeil's piece 'Ombres, espaces, silences...'. This piece was chosen as it starts with the sound of plainsong and then introduces other sounds too. It features recognisable sounds, such as steps, bells and voices, manipulated sounds in different pitches as well as clear rhythmical elements. All of these elements are considered to support the listening process (see discussion of 'something to hold on to factors' in chapters 1 and 2.2). The second piece 'Log Cabin', a soundscape piece composed by Rob Weale for the EARS II (P) curriculum, was listened to at the end of the last session. 'Log Cabin' consists of real-world sounds, such as the sounds of a clock, howling wind, fire crackling, thunderstorms and more, describing a scene that could be imagined as sitting at the fireplace during a stormy night.⁵¹ It was assumed that after the completion of the workshops the participants would be able to engage with the

⁵¹ That this second piece was much easier to listen to has been taken into account in the analysis.

sounds in a different way. However, although an increase in appreciation was expected for the second piece, this was not the case.

As outlined in chapter 6, Qualitative Content Analysis was used in order to analyse the data. As the aim of the following analysis is to show that this way of evaluation functions well in this context, only part of the data and results will be highlighted. An overview of all codes developed from the data will be given, of which a selection of codes will be investigated further.

The following list of codes were identified in the two listening response processes:

Codes from LisRes1	Codes from LisRes2
Alienation (17 comments) Aliens (0) Appreciation>no (2) Appreciation>yes (3) Film music (17) Frightening_sounds (17) Horror (2) Interpretation>death (16) Interpretation>war (27) Misc (0) Musical_term (5) Fantasy_world (18) Realworld_references (112) Sounds>description (16)	Alienation (5 comments) Aliens (33) Appreciation>no (5) Appreciation>yes (0) Film music (1) Frightening_sounds (0) Horror (3) Interpretation>death (3) Interpretation>war (5) Misc (12) Musical_term (11) Fantasy_world (11) Realworld_references (82) Sounds>description (20)

Definition of codes:

- alienation: Comments such as “weird” or “strange noises” were coded with ‘alienation’.
- aliens: interpretation related to alien (films) or the general conception of aliens.
- appreciation>yes: Words that express positive appreciation
- appreciation>no: Words that express negative appreciation
- Film music: Mainly references to the films King Kong and Harry Potter
- Frightening sounds: Comments, such as “scary”, “spooky” or “eerie” were coded with the tag frightening sounds.
- horror: interpretation related to horror films/stories
- interpretation>war: interpretation related to war.
- interpretation>death: References to death or the process of dying
- misc: comments that did not fit into the categories above, but were not strong enough to build an own category.

- musical_term: Terms that had been learned over the time of the workshop or that had been known previously (such as crescendo and similar)
- fantasy_world: references to fantasy world were comments such as “ghost”
- realworld_references: Comments such as “walking” or “train” were classified as references to the real-world. A complete list of responses sorted by codes can be found in the appendix.
- sounds>description: References to the sounds, onomatopoetic descriptions

Interpretation:

The most significant differences can be found in the following categories:

- “Alienation” decreases from 17 comments in the first listening process to 5 comments in the second listening process
- “Aliens” increases from 0 comments to 33 comments
- “Film music” decreases from 17 comments to 1 comment
- “Interpretation>death” decreases from 16 comments to 1 comment
- “Interpretation>war” decreases from 27 comments to 5 comments
- “musical_term” increases from 5 comments to 11 comments
- “real-world references” decreases from 112 comments to 82 comments

This shows an alteration of the participants’ listening approach.

Some of the changes can be linked directly to the piece (such as “Aliens”, “interpretation>death”, “interpretation>war”, “real-world references”). The other changes (“alienation”, “film music”, “musical term”) most likely have reasons that lay beyond the piece and are probably rooted in the content of the workshop. Understanding and learning progress.

Different explanations of this change are possible. Although some the changes could be linked to personal experience (for example of recently watched films) it is more likely that they can be linked to the recent educational experience over the five weeks of teaching. The responses also show progress in learning: The participants learned new terms, which can be seen in an increase of use of “musical terms”. There is also a decrease of comments tagged with “film music”. A reason for this could be that the participants have learned enough about electroacoustic music in order to be able to establish their own prototype of this experience. Therefore the need to connect the experience of electroacoustic music to something known (such as film music) is not as strong anymore. This

needs to be followed up, in order to establish if this is a trend or just relevant for this case study.

Liking and appreciation

An unexpected result was that there were fewer codes for positive appreciation in the second listening process. This was especially unexpected as the second piece was less abstract than the first. To identify a main reason for this was not possible. It could be as simple as that the participants did not enjoy the second piece. Further it is interesting that the number of comments coded with "alienation" decreases in the second listening process. This could be explained by the fact that the participants are more familiar with sounds used in and as music, which again could be explained by the theory that the participants have developed a cognitive prototype of electroacoustic music during the case study. This could imply that the participants were able to appreciate this music in a more sophisticated way. However, there was no direct proof in this data set. To keep these possible explanations in mind was necessary to see if more evidence could be obtained in the following case studies.

The previous paragraphs have shown how the data of the listening response test were analysed. It was possible to draw conclusions and to gain more insight into the reaction of inexperienced listeners before and after the workshops.

At the beginning of this section it was outlined that the quality of the data needs discussion. What was the problem in the beta study? In chapter 6 it was stated that teaching can be seen as a regulating screw in the reciprocal influence of teaching method, data collection and results. Therefore the methods and style of teaching had influenced the data collection strongly. After the beta study had been finished, the teacher pointed out that group work was only introduced in year 9. Hence, the group was not familiar with a number of teaching methods used (such as group work and self-regulated learning). Consequently, many participants had difficulties in coping with the teaching situation. Furthermore, the data were affected by the fact that the collection was based on the ability to

express thoughts in writing. Many participants of this group experienced difficulties in this area, which was most evident in the quality of the writing in the letters.

In order to optimise the learning progress changes had to be made in both the method and content of the teaching design:

7.3.1.6 Changes

Although the teaching content had been introduced slowly and the music was introduced gradually too, both, the teacher interview (see below) and the reaction of the class showed that the level of the workshop was too high for this class. A structured introduction of a different way to listen to sounds was missing. This was changed by the development of a listening training. This training introduced the differentiation of real-world sounds and generated sounds. A short quiz was designed, in which the participants had to listen to sounds and distinguish between real-world sounds and generated sounds. If they had identified a real-world sound, they were required to name the sound source as well.

The second part of the listening training introduced reduced listening by listening out for the musical parameters pitch, rhythm and duration in a looped sound. During the listening training there was always space for further questions and discussion of the listening experience. It was accompanied by simple tasks such as 'close your eyes and listen' or 'describe typical sounds of your school'. As will be shown later, this more systematic approach worked well in the following case studies.

Further consequences from the teaching experience in the beta study were to integrate an observation lesson before the beginning of each case study. This allowed the adaptation of the teaching style to that which the participants were used to. Furthermore, where possible, the study was carried out with the help of co-teachers, which a) allowed me to observe the class and their learning behaviour better and b) gave the class another person to relate to. Moreover, a stronger focus was given to practical elements in the lessons. This allowed the

participants to achieve greater success in learning as concrete experience is an integral part of learning (as shown in Kolb's model in chapter 3).

The methodology for data collection and evaluation was not changed for the future case studies. However, questionnaire 2 was made clearer as previously no question revealed whether the participants had gained detailed knowledge of electroacoustic music. Although the assessment of memorised facts was not the focus of the workshop (understanding was the central theme) those questions offered a quick overview of the learning progress. Hence, two knowledge-based questions were added to questionnaire 2 (questions 4 and 6) which was used for the subsequent case studies.

7.3.1.7 Teacher Interviews

Two interviews with teachers were conducted: one after the Beta study (Case study 1) and the other one after Case Study 2.

The overall feedback on the workshop and the curriculum was positive:

“I thought it was very interesting, in fact it is a great idea, the whole concept is a great idea, uhm I think the resources that you brought into the school were excellent and uhm I thought uhm the way... uhm the way the course was organised was excellent as well” (Teacher 1).

“I think they enjoyed it... It was a much different experience, they'd never done anything like it before... [...] I mean its quite... it's quite intriguing. I mean I wouldn't say that I'm interested in it by any means at all. It's just different. I think you have to have a really strong interest to go down that line. [...] Yes, I can see the advantage of doing the computers... the music technology. And it's great for if we are doing any work on media, film extracts, story boards... It would be brilliant. Because they can extract those sounds. Or they can get the combination of the real sounds to the manufactured sounds... So yes, I see its use” (Teacher 2).

Both teachers outlined in the interviews that the level of the workshop was quite high for a mixed ability school.

Teacher 2 agreed that the listening training had been a success:

“And they did listen... they where actually quiet. When they had to identify the sounds, they actually... did... listen...” (teacher 2).

When asked about the teachers' opinion for electroacoustic music, teacher 1 highlighted that the music is not as accessible as other music. Furthermore, teacher 1 emphasised that the National Curriculum did not feature enough electroacoustic music:

"[...] As a genre I think [electroacoustic music is] quite exciting really and it's [...] a genre in music that we don't use enough of [...] with regards of the teaching of music and with regards to the National Curriculum anyway. And [...] only EdExcel [...] has slightly touched on it [in its] area study 2 [...] 'new directions in music'. [...] They look at serialism and minimalism and they look at [...] electronic music and experimental music. [...] That's only a very small part. But with regards to the general national curriculum I don't think it's in there" (Teacher 1).

When asked what would be expected from a curriculum on electroacoustic music with an additional scheme of work (teacher pack) the teachers mentioned:

"I'd like [...] the listening examples made available and then I need information about how the [pieces have] been composed and who's composed [them]. Something about music itself. How it's been constructed, how it was written, how it was put together perhaps in a studio would be useful particular as we do teach music technology here. [I]t would be useful to find out how the music is actually been developed" (Teacher 1).

"Right, I think the way it was introduced was really good- whether you have the extracts- what's real music? What's that there? So if its been planned properly, I should imagine that what you've done, is enough for me to get it across to children in the first lesson. So straight away they'll know there's the difference between the electronic music and the real live sounds etc... and from there, its all about the listening, the listening to sounds, and being able to identify them. So I think it would sharpen up their listening skills in something that's very unusual- something that they've never done before, and then comparing it to ordinary, musical... music sounds- whether its orchestra music, whether its pop music. I think identifying the differences would be really, really good. And then when they go onto their own environment, when they're either doing their games, they can actually listen, they can actually then think... oh, that's actually not real music...that's actually electric music. So I think it would make them slightly more aware what the differences are..." (Teacher 2).

Towards the end of the interview teacher 1 was asked if they could imagine to use a curriculum such as the EARS II curriculum: "[...] Oh yes if it was made available definitely." (Teacher 1)

7.3.2 Evaluation of Case Studies 02, 03 and 04

7.3.3 Questionnaire 1

In the following section the results of Questionnaire 1 will be introduced for CS02, 03 and 04.⁵² The annotated questionnaire as well as a short description can be found in chapter 6.

7.3.3.1 Case Study 2

General Statistics

21 participants (nine boys and twelve girls) from year nine of a mixed ability state school participated in this case study. Twelve participants were aged 13; nine participants were aged 14.

Musical Preference

The class exclusively mentioned pop music when asked for their musical preference. Around half of the class mentioned R&B as their favourite style of music:

- R&B: 11
- Pop: 3
- Rock: 3
- Rap: 2
- Bassline (artist): 1
- various artists and styles (mentioned once each): Club, Electronica, Metal, Michael Jackson

Musical Education

Eight participants played an instrument: the highest grade taken in this class was grade four. 13 participants did not play an instrument.

⁵² Whilst interpreting the data it became obvious that (the intention of) question 3 was not fully understood by the participants. When asked for their preference of learning content in music lessons, most participants simply stated the examples given in the questionnaire. Therefore it was not clear if the result of the question brought up a) the participant's own thoughts or b) any new knowledge. This led to ignoring the question in the analysis. In retrospective asking for the participants' dream music lesson would probably have been more successful. Further, the ethnic origin of the participants was not followed up as this has been found irrelevant: although pupils from different ethnic backgrounds have been in all of the classrooms, there was no difference in the responses that could have been related to it.

Listening Experience

18 participants stated they had not listened to electroacoustic music before, two were not sure about it and one stated they had listened to electroacoustic music before.⁵³

Definition of Electroacoustic Music

The definitions of this class were exclusively related to electric instruments or pop music genres. Therefore the five participants who stated they had listened to electroacoustic music before could not describe what electroacoustic music is. Hence, they could also be classified as inexperienced listeners. This allows the conclusion that this class consisted of inexperienced listeners and that no previous knowledge of electroacoustic music existed in this class at this time.

Computer Skills

Every participant was asked to self assess their computer skills on a scale between 1 (I need more training) and 5 (very good, I am able to use programming languages). The students have all chosen very high scores, ranging from 3 to 5. Given the age of the participants it is highly unlikely that the students had a good command of programming languages. Nevertheless, it shows, how confident the students feel when rating themselves:

- 1: 0 participants
- 2: 0 participants
- 3: 5 participants
- 3-4: 2 participants
- 4: 6 participants
- 4-5: 1 participant
- 5: 7 participants

⁵³ Although the musical training of the pupils of this class was moderately higher compared to the level of the beta study group, this question shows that the pupils still can be classified as inexperienced listeners to electroacoustic music. One participant stated 'Yes, but I don't remember'. This was counted as a 'no' response as this still implies that this participant is an inexperienced listener.

Internet Usage

A mixed picture of Internet usage can be seen in this class. However, although four participants stated that they used the Internet for under one hour per day, it can be assumed that enough participants within this class were able to use a website and could help those participants who would have difficulties with it.

- <1 hour: 4 participants
- 1-2 hours: 4 participants
- 2-3 hours: 1 participant
- 3-4 hours: 5 participants
- 4-5 hours: 4 participants
- >5 hours: 3 participants

7.3.3.2 Case Study 3

General statistics

This class consisted of 25 year eight students of a private grammar school. The age ranged between 12 (9 participants) and 13 years (14 participants). Two participants did not mention their age. 13 boys and 12 girls were in the class.

Musical Preference

The answers to the question of musical preference are more varied than in the class of CS02. Pop music still remains in the main focus of the class, but for the first time, participants have written comments such as “alternative hip-hop” or names of artists that are not part of mainstream pop music culture. R&B, which was a style that has been very important for the previous class (and also for the beta study class), does not seem to be as important; pop music, on the other hand, has been mentioned by almost half of the class.

- Pop: 11 participants
- Rap: 6 participants
- R&B: 6 participants
- Rock: 5 participants
- Hip hop: 3 participants
- Drum and Bass: 2 participants
- Various artists and styles (mentioned once each): Classical, dub step, Charles Barkley, Gorillaz, The White Stripes, kooks, glee, Rhianna, piano songs, paradise, 80’s, bass, theatrical, don’t mind.

Musical Education

17 participants of this class stated that they played an instrument. The grades achieved ranged between one and five, which means that although this class is younger than the participants in CS02, their musical education is at a higher level. Eight students stated that they did not play an instrument.

Listening Experience

15 participants stated that they had not listened to electroacoustic music before, five were not sure and four stated they had listened to it previously. One participant did not answer the question.

Definition of Electroacoustic Music

What is interesting is that, again, those people who stated that they had listened to electroacoustic music before, did not manage to define it correctly. However, the seven definitions that could be seen as correct were given by participants who stated that they had not listened to electroacoustic music before (six participants) or were not sure if they had (one participant). This could mean that although the class is inexperienced in terms of listening, some of the pupils are able to define a term they have not heard of before, simply by logical conclusion stemming from the word. Another interpretation could be that some pupils were not aware of their listening experience and therefore did not state that they had listened to electroacoustic music before. However, as none of the definitions was entirely correct, it can be assumed that the first explanation is more likely.

Computer Skills

Nearly half of the class has rated their computer skills at level four (twelve participants). Seven participants rated their skills at level five. Therefore this class rates themselves as highly experienced computer users.

- 1 = 0 participants
- 2 = 0 participants
- 2-3 = 1 participant
- 3 = 4 participants
- 3-4 = 1 participant
- 4 = 12 participants
- 4-5 = 0 participants
- 5 = 7 participants

Internet Usage

Similarly to the previous class, the number of hours spent online varies. Nevertheless, it shows that the class as a whole is experienced enough to use a website:

- <1 hour: 4 participants
- 1-2 hours: 6 participants
- 2-3 hours: 7 participants
- 3-4 hours: 5 participants
- 4-5 hours: 1 participant
- >5 hours: 2 participants

7.3.3.3 Case Study 4

General Statistics

The class comprised 23 participants (eleven boys and twelve girls), of which six were aged twelve and 17 were aged 13. The case study took place in the parallel class to the previous case study in year eight of a private grammar school.

Musical preference

As favourite music mainly chart music and Hip hop were mentioned. Classical music was not mentioned. The class presented a very detailed and individual picture of their musical taste by naming artists and specifying certain styles.

“James Morrison, Joshua Radin, - soft rock, pop-not rap!! Chart music; now 7s (CD)” (Q1, CS04, participant comment)

Furthermore, two participants wrote down exactly the same response. Both participants seemed to be close friends, which could indicate the use of music to mark social groups and status.

These answers were given by the class:

- Chart music: 6 participants
- Hip hop: 6 participants
- Rap: 6 participants
- pop: 4 participants
- R&B: 4 participants
- rock: 4 participants
- Eminem: 3 participants
- JLS: 3 participants
- Justin Bieber: 3 participants

- Black Eyed Peas: 2 participants
- Chipmunk: 2 participants
- Jay-Z: 2 participants
- Usher: 2 participants
- Cheryl Cole: 2 participants
- Various artists and styles (mentioned once each): The Script, Jazz, Blues, James Morrison, Joshua Radin, Paramore, Lady Gaga, Glee Cast, Sean Kingston, Garage and Base, Drum and Bass

Musical Education

13 participants stated that they played an instrument; the grades achieved varied between one and five. Nine participants stated that they do not play an instrument; one participant did not answer the question. This shows that around half of the class is musically trained.

Listening Experience

16 participants stated they had not listened to electroacoustic music before. One participant was not sure and six stated they had listened to it before. This still leaves a majority of inexperienced listeners.

Definition of Electroacoustic Music

Ten participants stated “I don’t know” in this section. The participants who tried to define electroacoustic music, related it mainly to electric instruments or music with a strong beat. One definition explained electroacoustic music as “music using sound”. As this case study took place at the same school as the third case study, it is likely that this participant had talked to members of the other class. This assumption can be supported with the result of the listening experience question because this participant also stated that s/he had not listened to electroacoustic music before. Of the five participants who stated to have listened previously to electroacoustic music, four did not manage to define electroacoustic music correctly. However, one of them defined it as “Using machines (not proper voices) - different rhythms? Mixing sounds.” which, compared with previous attempts at a definitions, is more towards the right direction.

This shows that there has been no previous knowledge of electroacoustic music in the class except for one participant.

Computer Skills

The class rated themselves slightly lower than the class of case study 03. Twelve participants ticked four but only one ticked five, six participants ticked three:

- 1 = 0 participants
- 2 = 0 participants
- 2-3 = 1 participant
- 3 = 6 participants
- 3-4 = 1 participant
- 4 = 12 participants
- 4-5 = 2 participants
- 5 = 1 participant

Internet Usage

This class spends, on average, more hours online than the class of CS03. The vast majority of the class spends between one and three hours online per day and none of the participants spends less than one hour on the Internet per day. Therefore the class is sufficiently trained to handle learning with a website.

- <1 hour: 0 participants
- 1-2 hours: 9 participants
- 2-3 hours: 8 participants
- 3-4 hours: 2 participants
- 4-5 hours: 1 participant
- >5 hours: 0 participants

7.3.4 Questionnaire 2

The following section will outline the evaluation and interpretation of Questionnaire 2. In this evaluation questions 2 and 5 will be omitted. Question 2 (What should be different in the next workshop?) served the function of gathering feedback to improve the teaching situation in order to provide useful data. The question did not survey any other relevant data. Question 5 (How did you like working with the EARS II website?) focused on improving the website during the process of the case studies. Both questions served the purpose of improving the case studies while they were ongoing and were not directly related to the hypothesis.

In the following the results of the second questionnaire will be outlined question by question beginning with CS02.

7.3.4.1 Case Study 2

14 completed questionnaires were collected.⁵⁴ Of the class four participants were each in group 1 (talkshow *musique concrète*) and group 2 (composition *musique concrète*). Group 3 (composition soundscape) and group 4 (role play soundscape) were represented by three participants each. One participant did not state in which group they had been.

Question 1

a) What is your overall impression of the workshop?

The overall impression of the workshop was positive to neutral. Five participants rated their impression of the workshop as positive, nine participants were indifferent; no participant rated negatively.

b) What did you enjoy most of the last 5 weeks?

The participants mentioned predominantly the practical tasks as the most enjoyable in their responses. Composition of pieces and devising of role plays was connected with fun. In the evaluation four different codes emerged: Content (C), Listening (Li), Practical Work (P), Teaching and Learning (TaL).

⁵⁴ A dance festival took place in the school in the last week of the case study. Many students of the class were involved in the festival and therefore did not attend the lesson. As the term was coming to an end, it was not possible to collect more data at another session. However, enough participants were present to represent each of the groups in which they had worked in sessions 3 and 4.

This is a summary of the responses sorted by codes:

Content (1 participant)

- Learning about soundscape music (1 participant)

Listening (4 participants)

- Listen to music (2 participants)
- Listen to the compositions composed in the case study (2 participants)

Practical Work (9 participants)

- Composition task (7 participants)
- Talk show (2 participants)

Teaching and Learning (2 participants)

- Group work (1 participant)
- Composition in lesson (1 participant)

The following reasons were given for this rating:

- Spontaneous liking not further detailed (8 participants)
- Learning something new (3 participants)
- Independent working (we chose what to put in) (1 participant)
- Collaborative working (1 participant)⁵⁵

Furthermore, it was pointed out that the lessons were different to other music lessons. Finding out something new and the change of routine were mentioned as reasons for the enjoyment of the whole course as well as to the parts on listening and learning. Therefore the enjoyment of the workshop was related to the combination of interesting tasks that allowed independent collaborative working and bringing something new to the classroom.

⁵⁵ As for all other data coding procedures in this thesis, these codes derived entirely from the material. No existing model or scheme for evaluation of this kind of data was applied to the data.

What did you enjoy most of the last five weeks? ⁵⁶	Why?	Code
learning about soundscape	because I didn't know alot before	C
listen to some of the music	because it was ok to find out some new stuff	Li
listening to the soundscape pieces groups had made	because it was interesting to hear something different.	Li
listening to the music	because it was fun.	Li
concrète composition	funny – liked it	Li/P
doing the talk show on Musique Contréte	it is because it is fun	P
composition	because it was fun	P
I enjoyed every single bit especially the composition soundscape	because we made a sound movie and it was really funny.	P
concreté composition	because it was fun	P
Dunno, I like doing the talkshow	because it was fun	P
composing the soundscape music	because it was fun	P
composing our own piece	I enjoy composing pieces	P
I enjoyed everything about the last 5 weeks	because it was different to all our other music lessons with Mrs xx	P/Li/TaL
working in groups	we got to work together and share our ideas	TaL
making our own peice of music	because we chose what we put into it and working in groups is fun.	TaL/P

⁵⁶ All transcriptions of participants' data follow the original spelling.

Listening Change

Question 3

The result for this question was quite interesting. After the development and application of the listening training it was expected that the participants' listening would change. Seven participants stated that their listening had changed, three were not sure about it and five stated that there had not seen a change in their listening. When asked for the reasons why their listening had changed, the participants wrote:

- I like music I listen more into the different sounds.
- I listen to the music and it made me feel like I was there.
- yes, because I think of it in a different way whereas before it just thought of what the actual sound!
- because I have learned to listen for musical value.
- because it was easy to understand.
- I listen to the beat/pitch, etc of the sound not what it is.
- Yes, because this has made me more aware of sounds.

Hence, out of the seven participants that stated that their listening had changed, three participants felt more able to listen out for musical parameters (rhythm, pitch, duration). Two participants mentioned their ability to differentiate between sound and sound source had improved. Finally, three participants were just generally more aware of sounds. This matches the aims of the listening training (to be able to recognise the musical parameter within a sound, being more aware of sounds).

Factual Knowledge-related questions

As outlined in the methodology chapter, two questions aimed to look closer into the meaning of factual knowledge for the participants. The way the questions were asked required the participants to give facts that could have been learned by rote. Nevertheless in order to investigate whether factual knowledge had an effect on the appreciation of electroacoustic music, these questions needed to be asked. All case study classes had difficulties with both questions, as the memorising of facts was not central to the case studies as the teaching focused on conceptual knowledge has been discussed previously.

Question 4

Question 4 asked for the difference between soundscape and *musique concrète*. Five participants were able to remember the difference correctly, partly correct answers were given by two participants, seven participants were not able to give a correct answer. Often participants interchanged the words and defined soundscape music as music in which reduced listening was used, while responses regarding *musique concrète* would focus on the sound source. Those participants remembered the actual terms, but were not able to take the last step of relating their factual knowledge to the correct term.

Question 6

Question 6 asked if the participants could remember a composer, a piece and something that surprised them. Of these tasks only the tasks related to composer and piece were evaluated. The third question was asked to see if participants could reflect on the whole course and mention something that was new and interesting to them. As it was highly subjective, this was not evaluated in this category. Nine participants were not able to answer this question, five gave partly correct answers and only one participant gave a completely correct answer.

Appreciation-related question:

Question 7

Two questions focusing on appreciation were asked. When asked if the participants would like to listen to electroacoustic music (music with sounds) again, four participants answered yes, nine were not sure about it; two participants stated they would not like to listen to music with sounds again.

Question 8

The second question relating to appreciation, inquired if the participants would like to visit another workshop going into more detail, to which six participants agreed. Four were not sure and five would not like to do this.

The section 'anything else' contained mainly expressions of thanks or good wishes for the future. Therefore the data was not taken into consideration.⁵⁷

7.3.4.2 Case Study 3

25 questionnaires were returned for this case study. Six participants of those who completed the second questionnaire had been in group 1, five in group 2 and seven each in groups 3 and 4.

Question 1

a) What is your overall impression of the workshop?

14 participants rated the workshop positively, only one participant gave the workshop a negative rating.⁵⁸ Ten participants remained indifferent.

b) What did you enjoy most of the last 5 weeks?

In the evaluation of this question, the same codes as in case study 02 emerged from the answers (TaL, Li, P) which can be summarised as follows:

Practical work (19 comments)

- Talkshow (5)
- Working on computer (1)
- Soundscape role play (3)
- Composition (4)
- Recording and making sounds (5)
- Soundscape (1)
- Soundwalk (2)

Teaching and Learning Methods (8 comments)

- Watching role play and talkshow (1)
- Listening to pieces and talking about it (1)
- Group work (1)
- Acting (2)
- Soundwalk (2)
- Working on computer (1)

⁵⁷ This is also the same in the following case studies.

⁵⁸ Two participants ticked two options '☺' and '☹', which probably means that there was enjoyment of parts of the workshop. Therefore one vote has been given to ☺ and one to ☹.

Listening (4 comments)

- Listening to soundscape (2)
- Listening to new sounds (1)
- Listening to pieces and talking about it (1)

When asked for the reasons for their ratings, nine participants rated the practical work as fun or enjoyable. Those who gave more detailed reasons stated that the practical work was interesting; here the learning of new skills was mentioned especially. The teaching method was praised, especially employing group work and the combination of learning and acting. An important factor for enjoying the practical work was also the possibility of following their own creative approach. The results show a wish for more practical work. This can be seen as a positive rating for the workshop as this wish has been sparked by the workshop which means that it was successful.

In the category of teaching and learning the combination of an enjoyable task (acting) and new content seemed to be successful. Further it was mentioned that the teaching method allowed a freedom of decisions. This was related to the work on the computer, however it was not clear if that was related to creative decisions or the general working approach as the computer was used for all practical tasks.

Fewer reasons were given for the listening category. It was mainly described as fun (3 times) and interesting (2 times). Further comments stated that the listening was “relaxing and creates an image in my mind” and that it “taught me more about Electroacoustic music”.

The full data inclusive codes can be found below.

What did you enjoy most of the last 5 weeks?	Why	Code
listening to soundscapes	because it is relaxing and creates an image in my mind	Li
I liked listening to the composers and then talking about what we heard	because it was fun and it taught me more about Electroacoustic music.	Li/TAL
talkshow	the acting & putting my own ideas into it.	P
doing the talkshow	because it was funny	P
talk show	because it was fun + fanny	P
doing the talkshow	because we learnt different things about Pierre Chauffeur	P
making the soundscape	because it was fun	P
the role play	because it was fun to make	P
Recording the samples for the composition	Because	P
doing the talkshow	it was fun working together to produce a talkshow	P
making the sounds + putting them together	it was fun	P
the role play soundscape	because I enjoyed learning & acting at the same time	P
making the music	Because you got to use	P

	cool effects	
making sounds, recording them	Because It was fun making our own soundscape	P
the composition	because it was enjoyable	P
Recording the sounds	it was xxx (cannot read it) working with the noises	P
I enjoyed putting on the role play and listening to new sounds	because it was fun and interesting	P/Li
soundscape	it was interesting	P/Li
The sound walk	because it was fun thinking and finding sounds to record	P/Li
Talkshow doing in groups acting	because it was fun	P/TaL
walking and recording sounds	because it was different to other music lessons	P/TaL
watching the role play and talkshow	because I just watched	TaL
the acting	because I enjoy acting	TaL
the acting	cause I learnt about souncape via acting	TaL
the computer bit	because you had freedom to make descisions	TaL/P

Listening Change

Question 3

The listening change question had a similar result to CS02. Although in this case study more participants than in CS02 stated that their listening changed, the ratio of listening change and no listening change is still almost even. Twelve participants noted that their listening had changed; ten did not notice it and three were not sure about it.

Reasons for the change of listening given by the participants can be summarised as follows:

- Heard it for the first time (1)
- Listen out of musical parameters (3)
- Able to consciously switch into reduced listening mode (1)
- More aware of sounds (3)
- Able to differentiate between generated and real-world sounds (1)

Original responses:

- A bit, because I actually heard it for the 1st time
- Yes, I think now when I hear sounds I listen to the pitch as well as just thinking about what is making the sound.
- Yes and no, because only if I am trying to listen to them differently
- Yes because after learning and becoming used to this kind of music, I find myself listening to the rhythm around me.
- More aware, listen closer
- Yes, I do. Because I realise, what the noises are. for example when I was on a beach I could hear a lot of different noises.
- I listen to the things moving around me more and I try to focus on the sounds rather than looking around me.
- Yes a bit more. because I hear it.
- Yes I see what rhythm is in nature
- Now I can tell which sounds are generated and not.
- I on kinda I do occasionally

Factual Knowledge-related questions

Question 4

As found in CS02, the answers to this question did not match the learning progress that can be seen in the listening response test and the letter test. Although six participants defined the difference between soundscape and

musique concrète correctly according to the information given in the workshops, 16 participants struggled with this task and three participants gave only partly correct answers.

Question 6

Question 6 presents a similar picture to CS02. The majority (eleven participants) were not able to remember a piece or a composer. Eight participants remembered either a piece or a composer and six participants were able to remember both.

Appreciation-related questions

The two appreciation-related questions show similar results to CS02.

Question 7

The majority of the participants were not sure if they would like to listen to electroacoustic music again (15 participants), five participants would like to listen again and a further five would not like to listen to electroacoustic music again. This is an indifferent result, similarly to the result of the next question.

Question 8

When asked if the participants would like to attend a second workshop, eleven participants were not sure about it. Eight participants stated that they would like to do it; six participants answered in the negative.

7.3.4.3 Case Study 4

24 questionnaires were returned after the fourth case study.

Of the participants who returned Q2 four participants had worked in group 1, five in group 2, six in group 3 and five in group 4. Four participants did not state in which group they had been.

Question 1

a) What is your overall impression of the workshop?

The participants rated their overall impression of the workshop as indifferent to negative: five participants enjoyed the workshop, eleven participants were indifferent about it and seven participants gave the workshop a negative rating.

b) What did you enjoy most of the last 5 weeks?

Four codes came up in the analysis of this question. They are as in CS02 and 03 Teaching and Learning (TaL), Listening (L), Practical work (P) and Content (C). Furthermore, the code 0 has been used for the first time to categorise data that did not fit the categories above and did not give any new knowledge regarding the research questions. The following shows a summary of the answers split into codes. The full data set can be found below.

Practical work (12 participants)

- recording / making of sounds (3 participants)
- the role play / talkshow (4 participants)
- the soundwalk (2 participants)
- composition (3 participants)

Content (3 participants)

- learning about electroacoustic music (1 participant)
- individual research (1 participant)
- learning about *musique concrète* (1 participant)

Teaching and learning methods (5 participants)

- the soundwalk (2 participants)
- working with Motje (1 participant)
- splitting into four groups (1 participant)
- writing down thoughts while listening (1 participant)

Listening (2 participants)

- Experience of new type of music (1)
- Listening and writing helped to focus (1)

What did you enjoy most?	Why	Code
I dunno I'm bad at music even the music teacher says I'm challenged at music so it's not very confidence bringing to be honest.		0
nothing really:	bit boring	0
This Questionnaire	It's the most enjoyable thing.	0
the end	I didn't understand what electro acoustic music was.	0
the beginning. Learning about what it is.	you're learning something new.	C
learning about music concrete	because I knew nothing about it	C
learning about music when we were split into groups.	it gives a sense of rivalry and competition.	C/TaL
listening to the music	because I have never experianced that type of music	Li
listening to electroacoustic music and writing what I thought	It helped me really listen to the heart of the music and now I can give an overall impression on atmospheres	Li
making the sounds	it was fun	P
going for a soundwalk	because it was funny!	P
the talkshow performing	it was interesting and fun	P

	to present the concept of musique concrete in an imaginative way.	
the role play soundscape	I found it interesting and learnt alot.	P
Recording the sounds	it was interesting to see what sounds everyday objects make.	P
making the concrete	it was fun and creative	P
the practical stuff: roleplay	its always fun and better way of learning.	P
I enjoyed the composition	because it was quite fun and interesting	P
going on the soundwalk	because it was really fun and interesting	P
recording	it is more interactive	P
Role play	fun, interactive, physical	P
making the composition	because I could use my previous skills plus new things I had learnt.	P
Research	as it was on computer	P/TaL
I think Mo was a very entertaining teach.	Because she teaches us.	TaL

Listening Change

Question 3

Asked if they had realised a change in their listening, nine participants answered with yes, two with maybe and 13 with no.

The following list summarises the reasons for the listening change given by the participants:

- More aware of sounds + listening in general (4 participants)
- Able to listen to musical parameters of sounds (3 participants)
- Think differently: story in mind instead of video or picture (1 participant)
- Real-world sounds become music (1 participant)
- Picture sound in new styles learned (1 participant)
- Able to separate sound and sound source (1 participant)
-

In the full data set below, all reasons given by the participants, including the negative ratings, are listed:

- Yes, because now when I hear real world sound I wont just ignore, I will know that it's music.
- I am slightly more aware of the attributes of sounds.
- Yes, because I listen to rhythms and timbres more now.
- Because it makes my mind think of a story for the song and not just a video or a picture.
- Yes, think about things more often. How the sound is, what the significant was.
- Well I analyse the sound if I do not recognise it and I can picture it the new styles I have learnt
- Because I think more about where the sound comes from and listen to it instead of just hearing it.
- Yes I listen to more of the background and my ears are very alert.
- I only thought of the source of the music, now I think of an atmosphere and the impression.
- No, sounds are sounds
Electro-acoustic is not music theres no notes or tunes.
- No, as I find no difference in music concrete & soundscape & both don't sound like music.

Factual Knowledge-related question

Although fewer participants rated the workshop positively, more participants than in the other case studies managed to answer question 4 correctly. 13 participants could define the difference between soundscape and *musique concrète*, four participants showed partial knowledge and seven did not give the correct answer.

Question 6

In the evaluation of question 6, the results were similar to the previous case studies: only two participants gave correct answers, four remembered either a piece or a composer and 18 did not manage to give the required answers.

Appreciation-related question

Question 7

When asked if the participants would like to listen to electroacoustic music again, eleven participants stated no, eight, were not sure and five would like to listen to electroacoustic music again.

Question 8

14 participants would not like to do a second workshop, five were not sure and further five would like to go into more detail in a second workshop.

7.3.4.4 Correlations

Following the evaluation of the questionnaire, correlations were investigated between the following questions and parameters:

- Question 3 (will be referred to as 'listening change')
- Question 4 (will be referred to as 'factual knowledge 1')
- Question 6 (will be referred to as 'factual knowledge 2')
- Question 7 (will be referred to as 'listen again')
- Question 8 (will be referred to as 'second workshop')
- Gender
- Group choice

Introducing the results of those correlations, the following paragraphs will investigate these questions:

- What influence do conceptual knowledge (= 'listening change') and factual knowledge have on the appreciation of electroacoustic music in the EARS II (P) study?
- Did the group work influence the appreciation?
- What influenced the change of listening?
- What role does gender play in the evaluation?

The number of participants (64) is not high enough to see large differences, especially when the class was split into four groups. Therefore it is often only possible to show tendencies. Nevertheless, these tendencies are insightful and support the general idea of this research.

What influence do conceptual knowledge (Listening Change) and factual knowledge have on the appreciation of electroacoustic music in the EARS II (P) study?

Listening Change and Appreciation

Listening Change and Listen again

Listening Change	Listen Again			TOTAL
	Yes	Maybe	No	
Yes	10	16	2	28
Maybe	2	4	2	8
No	2	13	14	28
TOTAL	14	32	18	64

The correlation between listening change and listen again shows a significant difference: Of the 28 participants, who stated that their listening had not changed, only 2 participants would like to listen to electroacoustic music again while 14 did not want to do it. Of the participants whose listening had changed, however, 10 participants would like to listen to electroacoustic music again, while 2 preferred not to. Hence it can be assumed that the listening change (and therefore the acquirement of conceptual knowledge) influenced the appreciation of the participants.

Looking closer into this it can be said that the listening change group has developed a listening strategy for electroacoustic music, which can be classified as procedural knowledge (Anderson and Krathwohl 2001, 29). This is a result of

the teaching of concepts of real-world sounds and generated sounds as well as applying parameters of pitch, rhythm and duration to sounds. This type of knowledge can be classified as conceptual knowledge (Anderson and Krathwohl 2001, 29). Only of those participants who have developed procedural knowledge (listening strategy for electroacoustic music), can it be said with certainty that they have also developed conceptual knowledge, as this is seen as a prerequisite for the development of the listening strategies. Therefore the 'listening change group' will be seen as the 'conceptual knowledge' group.

Listening Change and Second Workshop

Listening Change	Second Workshop			TOTAL
	Yes	Maybe	No	
Yes	15	11	2	28
Maybe	2	4	2	8
No	2	5	21	28
TOTAL	19	20	25	64

Of the 28 participants, who stated their listening had not changed, 21 did not want to attend a second workshop, 2 would have liked to do a second workshop and 5 participants were not sure. While of the 28 participants, who stated that their listening had changed, 15 participants indicated that they would like to take part in a second workshop, 11 stated that they would consider it and two participants did not show interest in a second workshop. This shows clearly that the appreciation of the workshop (and consequently the interest in electroacoustic music) was much higher among those participants whose listening had changed over the course of the workshop. This is supported by looking at the group whose listening has not changed: only two participants would like to attend a second workshop, five were not sure and 21 opted against participating in a second workshop.

Factual Knowledge and Appreciation

Factual Knowledge 1 and Listen Again

Factual Knowledge 1	Listen Again			TOTAL
	Yes	Maybe	No	
1	4	10	11	30
0.5	1	7	1	9
0	9	15	6	25
TOTAL	14	32	18	64

Knowledge 2 and listen again

Knowledge 2	Listen again			TOTAL
	Yes	Maybe	No	
1	2	4	3	38
0.5	4	10	3	17
0	8	18	12	9
TOTAL	14	32	18	64

Both correlations do not show a clear result. It seems to be that those who managed to answer question 4 (factual knowledge 1) correctly, do not want to listen to electroacoustic music again; however those who managed to answer question 6 (factual knowledge 2) correctly would like to listen to electroacoustic music again. As this is contradictory it needs to be concluded that the factor 'listen again' is independent from the factual knowledge questions. This means that factual knowledge does not influence the participants' decision as to whether they would like to listen to electroacoustic music again.

Factual Knowledge 1 and Second Workshop

Factual Knowledge 1	Second Workshop			TOTAL
	Yes	Maybe	No	
1	7	5	13	25
0.5	2	5	2	9
0	10	10	9	29
TOTAL	19	20	24	64

Factual Knowledge 2 and Second Workshop

Factual Knowledge 2	Second Workshop			TOTAL
	Yes	Maybe	No	
0	4	3	2	7
0.5	4	6	7	17
1	10	10	16	36
TOTAL	18	19	25	64

The same can be said for the correlations of Factual Knowledge 1 and 2 with the participants' interest in a second workshop about electroacoustic music. The correlations are contradictory; therefore it must be assumed that factual knowledge again does not influence the participants' interest in a second workshop about electroacoustic music and therefore their desire to learn more about it.

Choice of Group

1) Did the group work influence the appreciation?

Group choice and Listen Again

Group choice	Listening again			Total
	Yes	Maybe	No	
1	2	7	5	14
2	5	8	1	14
3	4	7	5	16
4	2	8	5	15
TOTAL	13	30	16	59 ⁵⁹

As outlined at the beginning, the problem of a small sample of participants shows itself in particular in this correlation, as the number of participants per group is too small to receive meaningful responses. The table shows that more participants of groups 2 and 3 (composition groups) would like to listen to electroacoustic music again. The second group has only one member who would not like to listen to electroacoustic music again, apart from that all other groups have the same number of people who would not like to listen to electroacoustic music again.

Group choice and Second Workshop

Group choice	Second Workshop			TOTAL
	Yes	Maybe	No	
1	5	6	3	14
2	2	5	7	14
3	8	3	5	16
4	7	4	4	15
TOTAL	22	18	19	59

⁵⁹ 5 participants (4 boys, 1 girl) did not tick in which group they had participated.

A similar picture unfolds here with the only difference that it seems that groups 3 and 4 were slightly more successful. Both groups dealt with soundscape, while groups 1 and 2 dealt with *musique concrète*. The assumption can be made that the less abstract concept of electroacoustic music (real-world sounds used with the sound source in mind) was appreciated better by the participants. However, it needs to be said again that the figures are too similar and too small to be meaningful.

2) What influenced the change of listening?

Listening Change and Factual Knowledge 1

Listening Change	Factual Knowledge 1 ⁶⁰			TOTAL
	1	0.5	0	
Yes	11	4	13	28
Maybe	1	1	6	8
No	13	4	11	28
TOTAL	25	9	30	64

Of those participants who stated that their listening had not changed, 13 participants managed to answer question 4 correctly, 4 made mistakes and 11 answered incorrectly. Of those participants, who stated that their listening had changed, 11 participants answered correctly, 4 made mistakes and 13 failed to answer correctly. There is no significant difference which means that the listening change had no influence on the knowledge. Furthermore the knowledge did not seem to have an influence on the listening change.

⁶⁰ Factual knowledge 1 and 2 are measured in 1 = answers were correct, 0.5 = answers contained a few mistakes but showed learning, and 0 = answers were incorrect.

Listening Change and Factual Knowledge 2

Listening Change	Factual Knowledge 2			TOTAL
	1	0.5	0	
Yes	16	7	5	28
Maybe	7	1	0	8
No	15	9	4	28
TOTAL	36	17	9	64

In the correlation of Listening Change and Factual Knowledge 2 no difference is seen: Of the listening change group, 16 managed to answer the questions correctly, seven made mistakes and five did not write down correct answers. Of the group with no listening change, 15 participants answered correctly, nine made mistakes and four failed to give correct answers. In both groups the distribution varies by a difference of one to two participants, which neither shows an influence of factual knowledge on the listening change nor that the listening change had an influence on the knowledge.

Considering the results of both correlations of factual knowledge and listening change, the listening change must have been caused by something other than the factual knowledge.

Listening Change and Group Choice

Listening Change	Group Choice				TOTAL
	1	2	3	4	
Yes	6	8	6	7	25
Maybe	1	2	2	2	7
No	7	4	8	6	27
TOTAL	14	14	16	15	59

Group choice did not seem to have any influence on the listening change either. The figures of the individual fields do not differ much. It could have been assumed that those who did the composition tasks (groups 2 and 3) would have

had a more intensive training of their listening skills and therefore more participants from those groups would be aware of a change in their listening behaviour, but the data does not show it. Hence, the different groups work tasks did not impact on the listening behaviour. This also means that no group task has had more success than others. Therefore the impact of the composition tasks and the research and role play tasks on appreciation was equal, which supports the finding that the listening training of the second lesson has led to the listening change.

Gender

As Music Technology still fights with gender equality issues (see Colley and Comber 2003, 162) it was interesting to see how this manifests itself in the EARS II (P) study by looking at the distribution of boys and girls in the different groups:

Group choice and Gender

Group choice	Gender		TOTAL
	Male	Female	
1	5	9	14
2	9	5	14
3	10	6	16
4	5	10	15
TOTAL	29	30	59

All tasks involved computer work; in addition the composition tasks involved the learning of a new program. Overall, more male participants chose to do the composition tasks. However, looking at each individual case study, this is not always the case:

Case Study 2		
Group	Male	Female
1	3	1
2	3	1
3	3	0
4	0	3

Case Study 3		
Group	Male	Female
1	0	6
2	5	0
3	6	1
4	2	5

In both case studies above the composition groups were more frequented by male participants. However in the following case study the opposite was the case:

Case Study 4		
Group	Male	Female
1	2	2
2	1	4
3	1	5
4	3	2

One female participant of CS02 as well as four male participants of CS04 have not mentioned in which group they had taken part. This explains, why there are fewer boys in the all groups of CS04.

Despite the fact that those 4 male participants have not stated their group, observation confirms that a majority of girls chose the composition tasks. When the class split into groups, it appeared that working with friends was more important than the actual task. For the EARS II (P) study it can be said that (positive) peer pressure was a stronger reason for the group choice. It can be argued that there must be a reason why the first person chose their group which then led to the peer pressure. Investigating this in future studies to see if this shows a new trend would be interesting.

Listening Change and Gender

Listening Change	Gender		TOTAL
	Male	Female	
Yes	10	18	28
Maybe	5	3	8
No	18	10	28
TOTAL	33	31	64

A gender-based difference can be seen by looking at the correlation of Listening Change and Gender. In general, female participants were more aware of their change in listening behaviour than male participants. While 18 male participants stated that their listening had not changed, 18 female participants stated that their listening had changed. Further, 10 male participants stated that their listening had changed and 10 female students stated that their listening had not changed. The reasons for this result can only be speculated. A further investigation of listening change and its connection to gender and, for example, age could be interesting for further research.

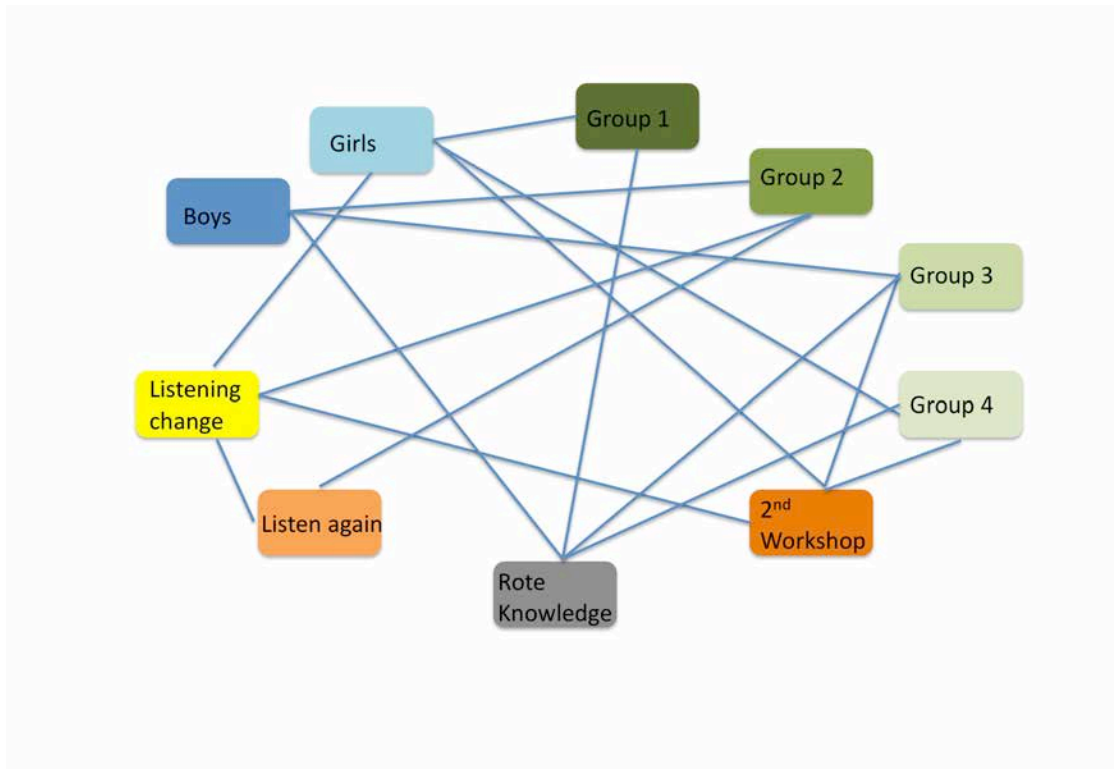


Figure 22. Positive Correlations of Questionnaire 2

7.3.4.1 Discussion

As shown above, it can be concluded that conceptual knowledge (as it was delivered in the EARS II (P) case studies as part of the listening training) influences the appreciation of the participants. Factual knowledge does not seem to directly influence appreciation. However, factual knowledge itself is important for developing conceptual knowledge: Participants had to know terms, such as real-world sounds, generated sounds, pitch, rhythm, duration. These terms were taught using frontal teaching and helped to develop the concept of reduced listening. The results have shown that the listening training, and with it the grasping and adopting of strategies for listening to electroacoustic music, is the key to a greater appreciation. Teaching electroacoustic music should therefore be based on concepts rather than by presenting the learner with factual knowledge. This is further supported by the results of the correlation, which show that neither the group choice nor factual

knowledge have had an influence on the listening change. The acquisition of conceptual knowledge, as in learning a strategy for listening to sounds and electroacoustic music, was part of the second lesson. During this lesson the listening training took place, hence the change of the participants' listening must have been caused by the listening training (and not by for example the composition task).

Consequently, this finding supports the hypothesis stated at the beginning of this thesis: teaching of concepts of electroacoustic music enhances appreciation of it. This means that listening training is the key to the appreciation of electroacoustic music.

The group in which the participants worked (in lessons 3 and 4) did not have any influence on appreciation. This is interesting, as often working with sounds is connected with music technology lessons that use composition as a tool to enhance the understanding of music with sounds (see chapter 2.3). This allows the conclusion that there is a general view that electroacoustic music is taught best by composition, which appears logical as this represents a concrete experience of sounds and electroacoustic music, which is one of the steps on Kolb's learning cycle. The results of this PhD project, however, do not necessarily support this point of view, as those groups who completed the role-play tasks, which included more research than the composition tasks, did not show a significantly different appreciation of electroacoustic music. An explanation could be that as there has been no curriculum so far, the learning situations did not contain listening training and that the only listening training participants received was the composition task itself. By teaching listening in a structured way prior to the composition task, this learning step which previously has taken place 'along the way', has been enhanced. Thus compositional ability should also be advanced as less energy has to be put into learning to listen.

It was made clear that the listening change, and therefore the acquisition of conceptual knowledge, has not been influenced by the group work nor the factual knowledge which was asked for in the questionnaire. This shows again how important listening training can be.

7.3.5 Listening Response Test

'It helped me really listen to the heart of the music and now I can give an overall impression on atmospheres' (Participant CS04 Feedback on Listening Response Test, Questionnaire 2)

7.3.5.1 Description of data / Definition of analytical units

After the participants returned their answers at the end of the test it could be seen that they had written their responses mainly in the form of single words or short phrases in bullet points; occasionally participants concluded their response in a final sentence. Often responses were scattered over the whole sheet, sometimes the writing followed a shape (spiral, square...). Participants also used underlining or emoticons to emphasise their impression.

The data was transcribed, in order to be compatible for the analysis in TAMS. A small number of the participants used individual shapes of writing or small drawings. Due to the standardisation of the data during the transcription the individual design of response sheets was ignored. This is a general problem with the transcription of data. Emoticons were kept as well as capital spelling. However, in order to compare different texts they need to be standardised to some extent. In the procedure of analysis codes were applied to every word/phrase and significant passages (first reduction). Following this, categories were built based on the resulting codes (second reduction). It was then decided which of these categories should be followed up further.

7.3.5.2 Result of the first reduction of the material

The first reduction of the material resulted in the following codes:

Codes from Case Study 2

Codes from LisRes 1 Response to: Gobeil	Codes from LisRes 2 Response to: Weale
<ul style="list-style-type: none"> • alienation • aliens • film music • horror • interpretation>piece • interpretation>war • misc • musical_term • musicalinstruments • fantasy_world • realworld_references • sounds>description 	<ul style="list-style-type: none"> • film music • musical_term • fantasy_world • realworld_references • sounds>description

Codes from Case Study 3

Codes from LisRes 1 Response to: Normandeu	Codes from LisRes 2 Response to: Stollery
<ul style="list-style-type: none"> • alienation • aliens • appreciation>no • appreciation>yes • film music • horror • interpretation>piece • interpretation>war • misc • musical_term • musicalinstruments • musicalreference • fantasy_world • realword_references • sounds>description 	<ul style="list-style-type: none"> • alienation • aliens • appreciation>yes • film music • interpretation>death • interpretation>piece • interpretation>war • misc • musical_term • musicalinstruments • realword_references • sounds>description

Codes from Case Study 4

Codes from LisRes 1 Response to: Stollery	Codes from LisRes 2 Response to: Gobeil
<ul style="list-style-type: none"> • alienation • aliens • appreciation>no • film music • horror • interpretation>death • interpretation>piece • interpretation>war • misc • musical_term • musicalinstruments • musicalreference • fantasy_world • realword_references • sounds>description • 	<ul style="list-style-type: none"> • alienation • aliens • appreciation>no • appreciation>yes • film music • horror • interpretation>death • interpretation>piece • interpretation>war • misc • musical_term • musicalinstruments • fantasy_world • realword_references • sounds>description

Each comment was coded according to the rules of summarising Qualitative Content Analysis described in chapter 6. It is important to mention again that the codes derived entirely from the original data. No existing theoretical model or code system was applied to the material.

7.3.5.3 Discussion of Codes emerging in the First Reduction

In all case studies almost the same codes emerged, despite the fact that the participants responded to different pieces. Some of the codes were clearly related to the actual piece, for example “interpretation>war”. Other codes were more general, such as “musical terms” or “sounds description”. This could be a sign that there is a general reaction of inexperienced listeners towards electroacoustic music. These codes will be followed up in more detail later in the analysis.

However, not only were the codes similar, often the change from listening response 1 to listening response 2 was analogous. This allows the assumption that all participants have gone through a similar process during the case study.

Further, the same pieces evoked the same codes regardless if they were listened to in the first or second listening process. However, as outlined in the individual discussion of the listening responses, quality and quantity of the responses per code vary. Therefore it cannot be argued that those responses are generic responses to the pieces independent from the learning experience within the case studies. This becomes especially apparent by looking at codes such as “musical terms” and “sounds descriptions”.

The codes give a general impression of how the participants reacted towards the different pieces in the different Listening Responses and situations. However, only a detailed analysis can show the actual change within the category, which follows below. Due to the scope of the project the analysis could not include all codes. In a second selection of the material, the decision was taken to follow up those codes that are useful examples to show the listeners’ change in perception:

- Sounds description
- Film music
- Musical terms
- Alienation

7.3.5.4 Analysis of Codes

The analysis of the code “sounds description” will be introduced first, as this functions as an overall category. Following this, the code “film music” and “musical terms” will be followed up in more detail. Finally, the code “alienation” will be discussed in the context of the results of the previous interpretations.

Code Sounds Description

Comments that represented the direct description of sounds, such as onomatopoeic descriptions of the sounds (“bang”, “smash”) or less frequently of functions of the sound (“spiritual”, “atmospheric”), were coded with “sounds description”. In CS 02 and 03, the code “sounds description” only appears in the first listening response, while in the second listening response no comments could be coded with this code. This means that fewer participants have written

descriptions of sounds. CS04 shows an increase in comments in the second listening response.

Many of the participants initially described their listening experience with onomatopoeic words. As the responses are different in the second listening process, something must have changed. An explanation for the decreases of the responses in the second Listening Response of CS02 and 03 could be that those participants have found another way to describe their listening experience over the course of the five teaching weeks. Case study 04 does not seem to go with the trend set by CS02 and 03.

Responses coded with “Sounds Description”

	LisRes 1	LisRes 2
CS02	<ul style="list-style-type: none"> • Bang • Thud • Telling a story • Through the art or nose • Bang doongggg smash • Woosh. Knife. Scary • Wooshey thunder bang • Car, banny , doing, magical • Sudden • spiritual • Gongything • Atmospheric • Tense • Tense • Sudden • Smash • At the beginning I could hear a crackling sound. • Then a bang apperead 	
	18 comments	0 comments
CS03	<ul style="list-style-type: none"> • sudden crackling • Hissing. • scary • dramatic 	

	<ul style="list-style-type: none"> • intresting • High • Fast • Inaudible • Crack • Electronic • Very merid ending • Computerised • Annoying Beeping Sound • More annoying beeping sound • Distorted??? • cracks • • all computer generated sounds • • 'common' sounds • • gates, beeping sounds, bells, distorted voice, cracking, egg • • Different noise/pitch levels • • Eerie. • • mysterious • • busy 	
	23 comments	0 comments
CS04	<ul style="list-style-type: none"> • • transforms • • changes • • scary • smashing/ Thundering Noises • static • quite jarring • crackled, • tata , • happy, busy, • scared • sudden noises • scary • electronic flies • thud • smash • calm • crackling • scary sounding, • smashing sound, acordian stops 	<ul style="list-style-type: none"> • • scary • • BANG! • • magical sounds • calm, • quite creepy. • oohh! • crumpling Aaaargh • dung! • Stops eerie • spooky • fast • eerie • jumpy • sort of humming and tinkering • loud bangs • a ringing (smooth) noise. • spookey • ringing • clinking • wispy • bangs

		<ul style="list-style-type: none"> • alien type of ringing • wierd sound clashing ringing • changes setting after crash or ring • spooky noise, • cling, crash, • sly, cling, • creepy • woosh • crash, • ringing • sacred
	18 comments	32 comments

Code “Film Music”

In the first listening response, the participants linked their listening experience back to their experience of film music. In particular films or series such as “Harry Potter”, “Dr Who” or “Transformers” are referenced. This can be explained on the one hand by the fact that “Harry Potter” and “Transformers” were in the cinemas at the time and therefore represented shared knowledge they could compare their listening experience to. On the other hand the sonic content of the films and TV series mentioned, has similarities to electroacoustic music: the sound effects often employ real world or generated sounds, sound manipulation and general electroacoustic composition techniques (such as spatialisation). Furthermore, the sound effects in cinemas have the function to create tension or to accompany actions. Soundscape music does not only use the same types of sounds (real world sounds), but also uses them in order to create an atmosphere or tension as well as to tell a story.

Thinking again about the prototype theory (introduced in chapter 1) the results suggest that inexperienced listeners do not have a prototype of electroacoustic music, therefore a connection with the closest experience (in this case film music) will be made. In the second listening response, it is seen that in CS02 and 03 the number of comments which could be coded with “film music” decreased. The previous discussion has pointed out that the same happened with the code “sound description”. This is a further indication of the change of the participants’ reaction to electroacoustic music. The participants seem to have developed an experience of electroacoustic music they can relate to, so they do not need to use previous experiences of similar music. This result indicates that the participants have developed a prototype for electroacoustic music.

Responses for Code “Film Music”

	LisRes 1	LisRes 2
CS02	<ul style="list-style-type: none"> • A tense film-scene • Alice in wonderland. Peter pan • Avatar the film • By this point I could almost tell that it has come from an action film or a science fiction film. • horror movie Soundtrack. • It seems to me that the sound has come from a movie • Sci fi-films • Sci-fi films 	<ul style="list-style-type: none"> • movie type theme • Scary movie
	8 comments	2 comments
CS03	<ul style="list-style-type: none"> • A transformer • A transformer • aliens (film) • C3PO • Darth vader. • doctor who, sort of thing • Doctor who. • Harry Potter? • horror film • jerasic park, • Like movie music • monsters • Movie, beginning with a scary bit • Rain maker • Robot-doctor who sort of things • scary movie music • Starwars • Terminator • Terminator • transformers • Transformers • transformers • Transformers! 	<ul style="list-style-type: none"> • avatar • avater • harry potter • ps2 game • scary movie • transformers • transformer • transformer • transformers • transformers2 • transformers!
	23 comments	11 comments
CS04	<ul style="list-style-type: none"> • harry potter • some bits sound a bit like a movie • transformer talk, 	<ul style="list-style-type: none"> • action movies • harry potter • Movie • scary movie

		<ul style="list-style-type: none">• sounds – like in scary movie• sounds like it's from a scary movie
	3 comments	6 comments

Code “Musical Terms”

Participants identified differences in

- Dynamics
- Texture
- Tempo
- Background/foreground of sounds
- Distance of sounds (close/far away) / spatialisation

Especially in the second Listening Response a large number of comments was coded with “musical terms”. This can be seen very clearly in CS02 and CS04: in both case studies the number of terms coded with “musical terms” increased in the second listening response (in CS02 from 8 to 60 comments, in CS04 from 12 to 30 comments). In CS03 no significant increase can be found, however the type of comments changes. While the first listening response shows more general comments (“many different sounds”) and terms the participants know from their normal music lessons (“loud”, “dynamics”, etc.), the comments of the second listening response are more detailed (“little, high pitched generated sounds”). Both, the increase as well as the change of comments, show learning progress.

The result from this code confirms and crystallises the findings for the previous codes (“Sounds Description” and “Film Music”). The comments show not only learning progress with regards to the participants being able to do aural analysis. In fact they show that the participants own a new vocabulary that allows them to put their new listening experience and the music into more accurate words. Therefore, the participants do not need to use comparisons or inaccurate descriptions of sounds (see codes “film music” and “sounds description”).

The result of this ability to describe and analyse a new piece while hearing it for the first time can also be linked back directly to the teaching with the EARS II (P) curriculum, as this vocabulary was part of the teaching.

Responses for Code Musical Term

	LisRes 1	LisRes 2
CS02	<ul style="list-style-type: none"> • Change of dynamics • Gets faster • Gets faster fades out • Gets thicker • Loud in some parts • Louder + softer • Quite loud sometimes • Quite slow sometimes • Scary slow music • Slow tempo • Sudden clunks, getting louder – crescendo, • Sustained • which the faded into the background. 	<ul style="list-style-type: none"> • Pitch varies from high to lower • wind whistling • pitch • Pitch – low • pitch – low • pitch – low • pitch – low • Low, pitch, • Repetition • Repetition • repetition • Constant beat of a clock • clock continuously ticking • clock – steady tempo • continuous beat • constant beat • clock in background • There's a repetitive clock going on throughout the piece. • tempo – slow • tempo – slow • Tempo • Rhythm • footsteps – rhythm • picks up speed and then slows down • Drone • Drone • a drone was in this piece • Rhythm louder softer Drone • fire – drone • fades out • more sounds come in • fade out • fades! • quite at the end. • fade out • got quite at the end • same rhythm in the background • has one sound always in the background • gets louder and then quieter • gets louder • gets really quiet towards the end • crescendo • loud • some dynamics are loud • Variety of dynamics • real world sounds

		<ul style="list-style-type: none"> • layers – thick
	8 comments	60 comments
CS03	<ul style="list-style-type: none"> • all computer generated sounds • bass • Bass • Big build up • Builds up tension • constant beeping • Contrast • Detailed piece • Different dynamics • Different noise/pitch levels • Electronic • Electronic • Fading ending • gradually grows larger and larger • large build up • Layers of sound • Long • Long and drawn out • Longer than most • Lots of everyday noises put together • Loud • Loud • Loud, then quit • many different sounds. • movement, • No voices just noises • Noise collage (lots of noises piled on top of each other) • Pulse in background • Put a regular beat • Quite repetitive • Repetitive • speed, • Spetial sounds • Strong base • strong noises, contrast well against each other • tension • Tension building up • Tension builds (kind of) • Very merid ending • 	<ul style="list-style-type: none"> • a low drone • beat • birds – varying pitch • different piches and ryths • does generated sounds, went on for a long time • electroic • fast • generated • generated • generated • generated • generated • generated sound • generated sounds • generated sounds – transformers • gets loud + quiet • getting closer • getting further away • getting louder • getting quieter • high pitched • high pitched • it has some generated sounds in to link up with the real world sounds • little, high pitched generated sounds • loud generated sound • louder + quieter • more voices, quite long • pipes playing – rhythm change • pitch change in pipes • quiet to louder + louder • real world sounds • soundscape • static • vary in pitch • vary in pitch
	37 comments	35 comments
CS04	<ul style="list-style-type: none"> • Beat 	<ul style="list-style-type: none"> • echoes & bangs ring on

	<ul style="list-style-type: none"> • Different Environments • Different Sounds • Hook • made up of normal sounds mixed with other noise • sound effects • static and cars • static soundings waves • Statick • talks a story? • Tune • Vocals 	<ul style="list-style-type: none"> • fading end of sec • gradual incline to big, loud bang clabb • low base with upper tune & rhythm on top • slow & gradual end • slow dim to silence • some pitch then changes onto another pitch • sounds generated on computerr – background • then calms down & gets bigger again, then calms down again. • then gentle again • Drums Bass • fast • fast, loud start to gentle rhythm • goes quiet • going/fading • high pitch sounds • huge ecko • it flaus from one section to another, occasionally suddenly. • louder and louder • movement • otherworldly sounds • quicker then stops & changes • slow motion • slowly turns into an end • slowmo • sound fade slowly from one part to another • tension • very melodic in some parts, not at all in others • volume not constant
	12 comments	30 comments

Code “Alienation”

Most of the comments coded with “alienation” express personal discomfort with the music (or the listening situation). Words like “scary” or “weird” are prominent and can be classified as negative emotional response. However, in the second listening response the number of “alienation” terms decreases in CS02 and CS03 and only changes marginally in the responses of CS04.

Interpretation

This could result from the participants becoming more comfortable with electroacoustic music after having spent five weeks learning about it, which is supported by the learning progress discussed in the previous sections. However, it is important to consider other factors that could have influenced these results:

The piece CS02 heard for the second listening response was significantly easier to listen to than all other pieces the participants had encountered before. Sounds that can be classified as Something-to-hold-onto-factors were clearly audible. Hence, it is very likely that the participants felt more comfortable with this piece at that moment in time. Unfortunately during all case studies this piece was only heard once. Therefore, it was not possible to follow this up with another listening process that might have resulted in different reactions towards the piece.

Nevertheless, the decrease of comments coded with “alienation” in CS03 confirms the findings of CS02 and therefore shows an interesting tendency. Inquiring into this in a future study with a higher number of participants and a different choice of pieces while focusing only on this question would be worthwhile.

Responses for code “Alienation”

	LisRes 1	LisRes 2
CS02	<ul style="list-style-type: none"> • Eerie, quiet, horror movie Soundtrack. • freaky • Music thing • Psychedelic- wierd composing of sounds • Quite scary • Random! • Scary • Scary • Scary • Scary slow music • scary woooooooooooooooooooooooooooooaaaaa • Strange • Strange • unusual 	

	<ul style="list-style-type: none"> • Weird 	
	15 comments	0 comments
CS03	<ul style="list-style-type: none"> • ??? ??? different sounds • A bit random • Annoying beeping • Confusion • Creepy • different • disturbing • hightec • not what I would describe as music. • odd – diffrent • scary • sounds very alienfied • Strange • Strange • Very different • Weird • weird • weird space 	<ul style="list-style-type: none"> • weird • weird music
	18 comments	2 comments
CS04	<ul style="list-style-type: none"> • not music • random • strange • Whats happening – no music!! 	<ul style="list-style-type: none"> • annoying sound that I'm sick of. • impossible, strange • this has nothing to do with anything, • weird again • what's with that sound
	4 comments	5 comments

7.3.5.5 Discussion

The results outlined above have shown that the EARS II (P) curriculum influenced three factors in the students' perception of electroacoustic music:

1) The factual knowledge of the participants was enhanced during the study: the participants developed a new vocabulary to describe their listening experience, which also enabled them to describe a new listening experience to unknown repertoire (LisRes 2) in quite specific ways. This offers the participants a new way to experience and appreciate electroacoustic music.

2) The participants have proven to be more attentive to detail in the second listening process. The increase of the code “musical terms” shows this quite

clearly especially in combination with the decrease of code “sounds description”. Although it could be possible that this is a result of the development of new vocabulary. Enhancing the ability of participants of using new words also enables them to record their perception in a clearer way. However, thinking back to the results of the “listening change” correlations of Questionnaire 2 it is more likely that the participants have discovered listening strategies and are now able to put their experiences into words.

3) In the first listening process the participants compared their listening experience with music from films, thus connecting the new experience to their everyday life experience. As well as this, it could be seen that the participants searched for ways to describe their listening experience (see results of code "sounds descriptions"). In the second listening response both of these have changed. Through the development of new vocabulary as well as through continuous listening experience and the listening training, it is likely that the participants have developed their own prototype of electroacoustic music to which they now can compare their experience.

The findings demonstrate that teaching with the EARS II (P) curriculum can enhance the appreciation of electroacoustic music by inexperienced listeners by giving them new vocabulary to describe their listening experience and helping them to develop their own (cognitive) prototype of electroacoustic music.

7.3.6 Letter Test

In the following section the interpretation of the data from the letter test will be presented. As mentioned in chapter 6, this test was carried out at the end of each case study in order to measure the learning progress of each group. The task was to write a letter to someone who did not take part in this course (i.e. a friend or a parent etc.). The data was transcribed and coded according to the rules of Qualitative Content Analysis.

During the analysis several categories were established which showed that the participants were able to define terms they had learned over the five weeks of teaching. The responses include mainly definitions that use the concepts taught in the curriculum. This shows that concept-based teaching is successful for groups of this age and level of knowledge. Participants also commented on teaching methods used during the case study and their preference for electroacoustic music and the workshop. The latter shows a mixed result for music preference, but a positive result for the enjoyment of the workshop. The participants valued the teaching methods positively.

The results of the letter test show that it is possible to enhance conceptual knowledge regarding electroacoustic music.

7.3.6.1 General observations

The style of the letters differs hugely. Spelling and grammar improves gradually with each case study and is at its highest level in the last case study. This might be explained by the fact that the last school was a grammar school. The two classes from this school were – although described by the teacher as a mixed ability group – high performance groups (CS03 and CS04). The results of both groups also show a higher ability in expressing details which resulted in a slightly higher number of codes applied to the data. Nevertheless, the code families (the overall category of codes) are still the same as in the other case studies. As QCA enables the researcher to focus entirely on the content, spelling mistakes and odd grammar did not matter and the information within all letters could be extracted.

Written text is a very reliable form of data, however it is not always possible to see the exact intention and meaning of the written text. In this test sometimes sentences occurred that could be interpreted in different ways. In those cases comments have been tagged with different codes in order to keep all possible meanings in the analysis (which explains why some of the comments appear more than once in the code lists).

7.3.6.2 Evaluation

After the transcription of the data and its analysis with QCA, the following codes were found (first reduction), which were then categorised in four different categories (second reduction):

- K = Knowledge-related codes that show learning progress.
- P = Preference-related codes that summarise comments regarding appreciation of the workshop or the music
- M = Method-related codes that show comments regarding the workshop or teaching methods.
- Misc = codes that do not fit in above categories, but have not been explored further.

CS02	Category
def>electroacoustic music>correct	K
def>musique concrète>correct	K
def>musique concrète>wrong	K
def>soundscape>correct	K
def>soundscape>wrong	K
comment>Mo>good	M
website>good	Misc
appreciation	P
workshop>dislike	P
workshop>like	P
CS 03	
aim_yes	K
def>electroacoustic music>correct	K
def>generated sounds>correct	K
def>musique concrète>correct	K
def>musique concrète>wrong	K
def>real world sounds>correct	K
def>soundscape>correct	K
def>soundscape>wrong	K
def>soundwalk>correct	K
learning_outcome	K
not_quite_right	K
workshop_aim>notunderstood	K
workshop_aim>understood	K
comment>Mo>indifferent	M
description_method	M
comment>misc>useful	Misc
alienated	P

appreciation	P
appreciation>no	P
workshop>like	P
workshop>like>suggestion_to_friend	P
CS04	
def>electroacoustic music>correct	K
def>generated sounds>correct	K
def>musique concrète>correct	K
def>musique concrète>wrong	K
def>real world sounds>correct	K
def>soundscape>correct	K
def>soundwalk>correct	K
parrot	K
workshop_aim>notunderstood	K
workshop_aim>understood	K
comment>Mo>bad	M
comment>Mo>indifferent	M
description_method	M
comment>misc>useful	Misc
confidence	Misc
website>good	Misc
website>negative	Misc
alienated	P
appreciation	P
workshop_like	P
workshop>dislike	P
workshop>like	P

These codes can be summarised to the following categories.

1) Knowledge-related codes that show learning progress (K).

- Code family: def
- Code family: workshop_aim
- Learning_outcome
- Musical_parameter
- Not_quite_right
- Parrot
- Westerkamp

2) Preference-related codes that summarise comments regarding appreciation of the workshop or the music (P).

- Alienated
- Code family: appreciation
- Code family: workshop (but not workshop_aim)

3) Method-related codes that show comments regarding the workshop or teaching methods (M).

- Code family: comments, except comments>misc
- Description_method

4) Further comments that were not followed up in the evaluation (Misc).

- Code family: website
- Comments>misc

Case studies 03 and 04 generated a higher number of codes than CS02. This is due to the fact that there were a) more students per class and b) that the method of writing a letter seemed to be more appropriate for both of those (grammar school) groups. Their letters were not only longer and more detailed but the writing style also differed from CS02.

As shown above, a high number of codes could be established in each category. Due to the scope of this PhD project it was not possible to follow up all codes. Therefore the most relevant codes were selected for each category.

From the knowledge-related codes the following codes were investigated further:

1) workshop>aim understood / not understood

(The code appears only in case studies 3 and 4)

The code *workshop>aim* was applied to those comments that show either that the teaching aims were fulfilled (understood) or that the participants were not able to reach these aims (not understood).

Main findings of code “workshop aim understood”

The participants were aware of/able to explain:

- Parameter: rhythm, pitch, duration
- Listen to music differently now
- Two genres: *musique concrète*, soundscape
- Participants can explain two ways of listening:
- Soundcape: story (sound source) in mind;
- *Musique concrète*: listen to parameters not the sound source
- Music can contain sounds
- All sounds have musical parameters, therefore can become music
- There's other music than classical music, R'n'B, Hip hop and Jazz.

Interpretation

This result can be related directly to the teaching that took place in the case study. The list above reflects the central ideas of the curriculum and the lesson plans of the case. Therefore it can be said that the participants have reached the learning target with the help of concept-based teaching.

Summary of Code “workshop aim not understood”

As challenges the following things were described:

- The understanding of *musique concrète*
- Thinking outside of the box: this is not music
- To understand the reason for learning this

There are different explanations for the appearance of comments coded with “workshop aim not understood”. First, not all students were able to attend all sessions, which means that some of them missed some content. Second, *musique concrète* seems to be a rather advanced topic, when the level of abstraction that the listener needs to follow during the listening process is considered. Third, the understanding of music in general depends very much on how open-minded the participants are, which can be to some extent beyond external influence. The second and the third categories within this code do not state that these participants have not reached the learning aims, but instead bring another aspect into the discussion: “Thinking outside of the box” was a central idea during the workshop. Not every participant was able to make this step. Subsequently the data of those students does not show enjoyment of the workshop. On the other hand, for those students who were able to think outside of the box, a whole new world opened up. Fourth, as all groups were mixed ability groups, it was unlikely that every participant would be able to reach the highest set of learning aims. Hence, in general those comments are not surprising in the context of any teaching environment.

However, the comments coded with “workshop aim understood” show how much understanding was gained by the participants and outweigh the comments in the “workshop not understood” code.

Data coded with workshop_aim>understood (understood) and workshop_aim>notunderstood (not understood)

Case Study	Data
CS02	<ul style="list-style-type: none"> no data tagged with this code
CS03	
Understood	<ul style="list-style-type: none"> So listen out for it in the music nx time. Everthing has rhythm – duration – pitch. Eg a train _:_ – _:_ _____ and a dog _ _ _ _ _____ I listen to music differently now and have enjoyed this workshop and hope that there is a second on. Hi, I've been doing a workshop about music with sounds. It's called electrocusic music. It is when you take recorded sounds and put them together on a computer. There are 2 types of this music, and they are: Musique concrète. That is when you are ment to listen to the rythm, pitch, duration and timbre. Soundscape music is were you are ment to create an image in your mind with the music. It's great! I have been to a workshop about Electro-acoustic music. If you don't know what this is, it is music with sounds. There are generated sounds, (made from a computer) and Real-world sounds (that is heard in the environment). These sounds can be arranged so that they become peices of music. There are two ways of listening to this kind of music; Soundscape: which forms an image in your mind (like a soundwalk) and Musique Concrète; Where you listen ot the pitch, duration, timbre and rythm.
Not understood	<ul style="list-style-type: none"> now there is another type of music called music concretê but I don't no what that is. We also did a talkshow about music, that was brilliant simply because all we had to do was to make it up! The course was ok but I didn't understand alot. I have been doing a workshop learning about music concrete this is where you listen to sounds and you can tell if they are real or not[.] Then you do activities about music concrete to learn more about it Electro-acoustic music is where you see whether a sound is made by a computer or if it is real world. Also you do an activity where you can do a talkshow about it, which is funny, some parts of this workshop are confusing, but others are okay. You may like it you my not it depends on whether you like music enough or not.
CS04	
Understood	<ul style="list-style-type: none"> In this course I learnt about music concrète & soundscpae music. I learnt the differences between them & how to identify Real Sound & generated sounds. Music is music but some can come with sounds. From life but still have Rhythm, duration & pitch & one other (can't rember) Im writing to you about this new workshop I've been in. It is about working with sounds to create music. It's like music but

	<p>generated on the computer. Some of my friends have made electroacoustic music, they took sounds from around school and made a recording. I was in this talkshow about music, although I was ill on the actual performance, ouch!! Anyway it was cool, bye</p> <ul style="list-style-type: none"> • You also learn plenty on the course like the difference between soundscape and music concrète so its worth a go. • The whole thing rests on the idea that all sounds have timbre, pitch, duration and rythm, and so can be called music. • did you know that you talking or walking through a bunch of leaves is a type of music? Its called Real Wold sounds. It has made me think because I now know that everything I do could be recorded an put into a song. • We had to create a play where there were all different type of people with different tastes in music trying to choose one type of music that would be played in the concert, the idea of it was that we all had to take it in turns to describe what are music was and how it was the best for the concert. • We learnt that soundscape music was real wolrd sounds lapped over each other and music concrete was real world sounds that were modified so you listen to the sound and not the sound source.
Not understood	<ul style="list-style-type: none"> • We learnt about music concrete (which I still don't get lol!) and other forms of electrocoustic (music using sounds and random stuff but no words or tune or anything like normal music!) music. One week we walked around school recording realworld sounds. All you could hear was Me & Fatty arguing! • At my school we have been studying something called electroacoustic music. this is a workshop with Sounds that calls itself music even though it lacks instruments & notes two main things in music. personally I found it very boring and struggled to understand how its music and why anyone would chose to listen to it. I enjoy most music but this I found extremely painfully boring. Since this is not music, I don't see why it is in our lesons. I found that the person leading us failed to win the majority of us over. I found this incredibly boring! • I like this type of genre(?). My favourite artist is pundulum. I also like the variation(?) of electro acoustic music I prefer listening to the generated sounds since they are more technical and computerised the sounds are composed (?) and describe (?) a particular rythm or beat, this creates a good drum and base song. • At school i have been learning about music which you could stand still and hear it is a bit silly but it was good fun :D :) :/ ;)

2) Definitions

The responses coded with 'Definitions' were investigated further, as it was assumed that they show a learning progress on the behalf of the participants. As knowledge was defined as one of the parameters of appreciation that can be influenced (see chapter 2), this was relevant for this research.

Main findings

Comments, that explained the main terms introduced in the workshop were tagged with the code *definition*. Different terms were defined by different groups. However, members of each group were able to explain the main items they had learned. This shows that after the teaching had taken place the participants were able to explain electroacoustic music, soundscape, *musique concrète*, real-world sounds and generated sounds on a Key Stage 3 appropriate level.

The following paragraph shows the terms which were defined by each group:

CS02: electroacoustic music, soundscape, *musique concrète*

CS03 and CS04: electroacoustic music, soundscape, *musique concrète*, generated sounds, real-world sounds

Before investigating further details of the definitions, the following table shows an overview of the number of correct and incorrect definitions:

	CS02	CS03	CS04
Correct	17	36	30
Incorrect	6	2	2

The code "correct" was given when the definition was mainly correct. Therefore a comment such as "Electroacoustic music is listening to sounds. It's a new way to listen to music" has been coded as correct. Although this is technically not a correct definition of electroacoustic music, it reflects the main issues discussed around electroacoustic music within the workshop.

However, definitions, such as “soundscape music are sounds that have be edited by a computer these are called generated sound” have been coded as incorrect, as it had clearly been taught in the workshop that soundscape music consists of real-world sounds. So considering the knowledge the student could have obtained, this is a wrong answer.

Interpretation:

The data show an immense learning progress. They show that each group was able to explain the main terms and concepts that the participants had learned. This means that after the teaching had taken place the participants were able to explain electroacoustic music, soundscape, *musique concrète*, real-world sounds and generated sounds on a Key Stage 3 appropriate level – after five weeks of learning and without any prior knowledge.

Looking more closely into the definitions given, they can be seen as a proof of understanding: The choice of words shows that the participants do not just repeat the definitions as they were taught them, they use their own words and ways to explain the concepts. Thus, they own the concepts they have learned. This proves on the one hand that the concept-based teaching approach is a successful way to teach electroacoustic music and on the other hand that it was possible to enhance knowledge, one of the factors for appreciation.

7.3.6.3 Knowledge-related codes

CS02	
Correct	<ul style="list-style-type: none"> • I have been learning about acoustic music. This also involes soundscape music and musique concrète. • The music is not made with guitar or pianos. It’s made with real world and Generated sounds. A real world sound is a sound we hear everyday and a generated sound is a sound make by computers. Eltroacoustic music is soundscape music and music concrète. • there to elements this type of music and they are Realworld sounds and Generated sounds • It is about soundscape music and musique concrète. This all comes under something called electroacoustich music.
Incorrect	<ul style="list-style-type: none"> • no data

CS03	
Correct	<ul style="list-style-type: none"> • I been do a course in school on electro-acoustic music which is music which is a mix of natural sounds and generated sound • I have been to a workshop about music with sounds. This kind of music can consist of everyday noises that we take for granted. You can go on a soundwalk, which is where you take a recorder out with you while you walk around. • In electro-acoustic music there is real life sounds like bird and then there is generated sounds which aren't real like a zap. • Music concrete and sound scape is real life sounds put into a song. Pier Schaifer is one of the most famous compose, as in the 1960's he has written a song purely on train sounds. • Music concrete and Soundscape which is electroacoustic Music
Incorrect	<ul style="list-style-type: none"> • no data
CS04	
correct	<ul style="list-style-type: none"> • taught us about music concrete and soundscape and what the difference is. Electroacoustic music is music played through electricity and uses no musicians. Sounds can be made into music by using certain computer software to modify it in order the make the music soud weird or distorted. • electro acoustic music. Basically, its sounds that have been recorded (and some that have been generated) made into a musical composition • Electroaucoustic music is a mixture of real world & generated sounds. Real world sounds are sounds we make like when I sing. • Electrocoustic music contains both real world & generated sounds. • In the past weeks I have been learning about electroacoustic music, I am still not too sure what that is but I know that soundscape and musique concrète are types of electroacoustic music. • It is music made without guitars or pianos or words, but with real world sounds like birds or somebody playing ping-pong. • the electro acoustic music is a mixture of generated and real world sounds. • There are 2 types of sounds in electroacoustic music – realworld sounds (sounds you could hear every day), and computer generated sounds (like on transformers, those futuristic metallic sounds). • This music has alot of different parts. There are real-world sounds which are sounds made by us and things around us. There are also generated sound which are made by a computer, these are played in music now to give effect.
Incorrect	<ul style="list-style-type: none"> • no data

Definitions of Electroacoustic Music

Definitions of Soundscape

CS02	
Correct	<ul style="list-style-type: none"> • Soundscape music is listening to a sound like it's a cinema clip picking out the different items or instruments used to make it. • soundscape is Real life sounds grouped together to make a piece of music. • soundscape music is like telling a story with sounds, • Soundscape – listen to the sound for what it is • put together to make a peice of music. • don't know what soundsape is lots of real world sounds put together but mixed up by a computer! You have to think past all of the real world sounds. • whereas soundscape is not edited and you visualise the music as you pretend to be in the piece. • Soundscape music is not edited and you visualise it.
Incorrect	<ul style="list-style-type: none"> • Soundscape is a computerised piece of music that is composed together to make a piece of music. • soundcape music are sounds that have be edited by a computer these are called generated sound.
CS03	
Correct	<ul style="list-style-type: none"> • a soundscape is what you find on like a walk and the sounds that you hear • A soundscape is like putting different sounds together to tell a story. • I have learnt about soundscape music which is sounds all joined together to creat a piece of music. Soundscape is real life sounds that you hear every day and a soundwalk is where you walk around and are more aware of the sounds around you rather than taking sound for advantage. So when you are next on a walk be quiet and listen to the sounds around you because you might find sounds that you didn't know were there or you have never heard before. • Soundscape music is where the sounds tell a very simple story. • Soundscape is music trying to tell you a story like going on a sound walk. • Soundscape is where you walk around collecting sounds & you play them together, it makes a piece of music. • Soundscape music is a lot of real world sounds put together you get these sounds by going on a sound walk. • Soundscape music is were you are ment to create an image in your mind with the music. • soundscape music is where you have recorded sounds all over the place and you put them together to make a music track. • There are two ways of listening to this kind of music; Soundscape: which forms an image in your mind (like a soundwalk) and Musique Concrète; Where you listen to the pitch, duration, timbre and rythm. • This type of music is called Soundscape, and is all about using sound around you to make a peice of music. For example say your on a busy street, you can walk around recording the cars going past, the people talking, street venders, anything, and then you can take those sounds and more them around to tell a story and make

	<p>an image in someones head.</p> <ul style="list-style-type: none"> • We have also learnt about and listed to soundscapes and soundwalks. This is where you gather a load of sounds and put them all together to form a story. • We learnt what soundscape is, which is recording things and putting them together to tell a story in your mind. • We learnt what soundscape music is it is realworld sounds that create an image. • We listened to sounds and soundwalks which are when people walk around and record what they hear. • You can go on a soundwalk, which is where you take a recorder out with you while you walk around.
incorrect	<ul style="list-style-type: none"> • Soundscape is sounds that have been made in real life or generated.
CS04	
Correct	<ul style="list-style-type: none"> • Composers gather their real-world sounds by going on sound walks and recording what they heard then editing it on the computers they have. I think you should research it, John. It sounds like your kind of thing. • Soundscape music is where a person walks around with a recorder and records the sounds that are happening around this person for example sounds in a park or shopping centre. • soundscape that is basically sounds from out world put into a composition. • soundscapes (where you also think about the sound source). • We learnt that soundscape music was real wolrd sounds lapped over each other • We listened to some soundscape music. Which is real world sounds also put together. But this time, it is made into a story. • a sound walk is where you go on a walk with a recorder and use the recordings to make a sound skape.
Incorrect	<ul style="list-style-type: none"> • no data

Definitions of musique concrète

CS02	
Correct	<ul style="list-style-type: none"> • Concrète is listening to the sounds with in a sound making it sound unnatural and unrealistic, not thinking about the items used but how their put together and the dynamics and different structures. • where as music concreté is listening to the musical value of sounds, such as pitch, texture and rhythm. • Mistic concrète – listen to the features of the sound/musical value • Musique concrète was discovered by Pierre Shaffeur. It is where you take real world sounds and edit the sound and add reverb, speed up the tempo etc. to look at the musical values, • Musique concrete is edited. Look at the musical values • We also learnt about musique concrète which is a piece of music made up of real world sounds.

Incorrect	<ul style="list-style-type: none"> • Music concrete is a group of computerised sounds put together to make a piece of music. • Music concrete is real world sounds edited to make another piece of music. • Musique concrète is sound that are not edited by a computer and the sound are sounds that you hear ever day and are called real world sound
CS03	<ul style="list-style-type: none"> •
Correct	<ul style="list-style-type: none"> • Piére Shoffer first used trains in a music concrète piece and not many people enjoyed. • There are two ways of listening to this kind of music; Soundscape: which forms an image in your mind (like a soundwalk) and Musique Concrète; Where you listen ot the pitch, duration, timbre and rythm. • We also did music concrète, which was invented in 1948 by Pierre Schaeffer. He recorded a train noises and put them together to make a piece of music, listening to the duration, pitch and texture. • We made a musique concret composition. Musique concret is making and recording some sounds and then editing it artificially. • We produced a talkshow, which included information about the history of music concreté. Pierre Chauffeur broadcasted the first piece of music concreté. • Musique concrete is about sounds that have been mixed together to make one noise.
Incorrect	<ul style="list-style-type: none"> • Music con-crete is a mix of generated and realworld sounds.
CS04	<ul style="list-style-type: none"> •
Correct	<ul style="list-style-type: none"> • music concrète (where you listen to the sounds, not thinking about where they come from) • music concrete was real world sounds that were modified so you listen to the sound and not the sound source. • music concrète you listen to the actual sound (rhythm) instead of the thing making it. • music concrète. Which is just real wolrd sound put together. We listenned to some soundscape music. Which is real world sounds also put together. But this time, it is made into a story. • music concrete. This is were you listen to music, not the source but the pitch Duration and tombre. • Musique concrete is where a person has random objects, such as selotape and makes different sounds with them, after you have made many different sounds, you can mash them up and cut bits out, and therefore change the song. • Musique concrète, which you listen to the sound itself instead of what made the sound. It is split into tambre , duration, pitch, and a few others I can't remember, • Musique concrete is where you listen to sounds and try not to think of how it is generated but listen to the timbre, Rhythm + duration.
Incorrect	<ul style="list-style-type: none"> • Music concrete is where you listen to the background and where the music we were listening to, source • Then theres music concrete were the real world sounds are disused (?)

Definition Generated Sounds

CS02	No data
CS03	
Correct	<ul style="list-style-type: none">• and generated sounds, sounds that have been generated on the computer.• but a generated sound comes out of computers like, a police siren or a school alarm• where ase generated sounds are made from a computer.• You can also get generated music, where it has been generated on a computer and then put together to make a piece of music,
Incorrect	<ul style="list-style-type: none">• No data
CS04	
Correct	<ul style="list-style-type: none">• Generated sounds are not in the environment and are made on the computer.• Generated sounds are produced on a computer.• There are also generated sound which are made by a computer
Incorrect	<ul style="list-style-type: none">• No data

7.3.6.4 Preference-related codes

Of the responses coded with appreciation-related codes the following codes were investigated in more detail:

1) Workshop like / dislike

2) Appreciation

1) Workshop like / dislike

Main findings

With regards to music teaching there are several factors that play a role in fostering music appreciation. Not only the content but also the method of delivery is important. Even the best content can be disliked if it is taught poorly. Therefore whether the workshop was liked or not plays a major role in this case. In the second questionnaire, questions about the enjoyment of the workshop

were asked. However, this only captured limited answers, such as yes or no responses. Although it was neither part of the task nor expected, many participants expressed their own opinion of the workshop in their letters. By summarising it was possible to filter out the reasons for their judgment.

The results show that the vast majority of the students enjoyed the workshop. Especially CS03 seemed to enjoy it very much, which can be seen in the fact that a) no data for dislike could be coded and b) that many participants suggested to the person they were addressing in the letter that they should take the workshop, too. This was coded in a subcategory “suggestion to friend” and put into the full data table as extra row. Especially the recommendation shows how much they have valued the workshop.

Reasons for code “workshop like”:

- workshop was well taught
- teachers have been kind and listen
- enjoyment of practical work
- enjoyment of group work (with friends)
- workshop was different to normal music lessons
- included different methods, therefore easy to understand
- content was something new.

These responses can be further summarised in comments regarding the teaching itself (well-taught, kind teachers who listen), the variety of teaching methods (mentioning of the practical work and different methods throughout the course as well as collaborative learning), and finally regarding the content itself (new, different to normal music lessons).

Reasons for code “workshop dislike”:

- children/students did not listen very well
- personal dislike of this style of music
- personal dislike of music at all
- struggle to accept that this is music
- practical issues: Audacity fail/website dislike

Interpretation

The approach of the curriculum, outlined in the chapters 4 and 5 is reflected in the participants' reasons for liking the workshop. The triangulation of the curriculum of learning, listening and making as well as the aim to have fun while learning have been met in all groups of the study. Additionally, this supports the result shown in the knowledge-based categories that the method of concept-based teaching seemed to have worked.

The findings filtered out of the negative comments identify more often issues with the individual learner than the actual course: if some participants do not listen is to some extent out of the hand of the teacher. The study also did not have the aim to change the personal musical taste of the participants. The discussion of "what is music" was deliberately not held in case studies 02-04, however the "struggle to accept that this is music" comment came from a student in CS04.

Full data set for Definitions real-world sounds

CS02	No data
CS03	
Correct	<ul style="list-style-type: none">• A real world sound is the clanking of metal or the bark of a dog ,• Real-world sounds (that is heard in the environment)• There are also things called realworld & generated sounds, realworld sounds are sounds made naturally• There is soundscape which is music from what we hear into a sound. You can have a story behind it or people speaking.• We have listened to real world sounds, such as a dog barking or keys dropping
Incorrect	<ul style="list-style-type: none">• No data
CS04	
Correct	<ul style="list-style-type: none">• First we learnt about real world sounds. That is where you here the sound in real life and it is not computer generated.• Real world sounds are sounds we make like when I sing.• There are real-world sounds which are sounds made by us and things around us.
Incorrect	<ul style="list-style-type: none">• No data

Definitions generated sounds

Code Workshop like / dislike

CS02	
Workshop like	<ul style="list-style-type: none"> • I have been doing some good course • My experience on this workshop has been amazing! I feel like I have learnt so much. It has been enjoyable because the teachers have been kind and they listen to whatever you say. If there was another workshop I would definitely go. They only came for 5 weeks, but it feels like months for the amount that I have learnt. • My overall impression of the workshop was magnificent! • I thought that this was ok but abit boring but fun at sometimes. We did practical work that was fun. • During this course we made our own piece of music concrete we got into groups and picked some sounds and made a piece of music we also alterd pitches used reverb, Reverse and fadeout I enjoyed it. =) • Overall, it was a very good course, and I would be very happy to go to a similar workshop again. • This workshop has been very informative. I have learnt about music concrète and soundscape pieces. • I liked this workshop. • It was very good but maybe some more practical would of made more fun! • Well it was really fun I hope you have an opportunity to experience this and cya you will enjoy it definitely. • It was interesting as I didn't even know this sort of music was existing in the world! The teachers explained it really well too.
Workshop dislike	<ul style="list-style-type: none"> • Overall it was a very informative course, although I would not do this again.
CS03	
Workshop like	<ul style="list-style-type: none"> • I have been to a workshop about music with sounds. You may think it's a bit weird but once you get into it, it is quite fun. • I have done a workshop with music. It was fun and enjoyable. • I listen to music differently now and have enjoyed this workshop and hope that there is a second on. • Also you do an activity where you can do a talkshow about it, which is funny, some parts of this workshop are confusing, but others are okay. You may like it you my not it depends on whether you like music enough or not. • It is a good idea to take this course. • "You will never believe where I have gone, yes, your right, a music workshop. It has been really fun, we found out about different types of music, you will never guess how many

	<p>types there are.”</p> <ul style="list-style-type: none"> • This workshop on music with sounds is coming along nicely. It's a good place to work and stuff, but should include more fun activities in it. • I bet you have never heard of electroacoustic music, well you have now. I have been learning about it music with Motje. It is actually alright. • We had to do a talk show about music concrete which was extremely fun as I got to be with my friends & act (even if I didn't understand the music) • The course was ok but I didn't understand alot. • This was quite a good course but I don't like electro-acoustic music.
Workshop like + suggestion to friend	<ul style="list-style-type: none"> • I know you would like this so you should try this course. • If you want to go on the course you can but I probably would not come with you so have fun the talkshow is brilliant. • if you enjoy music I advise you to go on the course, if not you'll find it pointless. • I think you should come along too! • Music concrete is all about gathering real world sounds and composing them to your own desire to make music. I think you'll enjoy it, give it a go.
Workshop dislike	<ul style="list-style-type: none"> • no data
CS04	
Workshop like	<ul style="list-style-type: none"> • It was very fun and I enjoyed it! • At school i have been learning about music which you could stand still and hear it is a bit silly but it was good fun :D :) / ;) • I had lots of fun and it was really interesting to learn about a new style of music. • It was great fun and if she comes again you will have to come! • Learning about Electroaccoustic music has been interesting. • My favourite part of the workshop was when we got to go for a sound walk an then creat a soundscape with our recorded sounds • This course included Practical & mental lessons. So I learnt about both in different methods. So it was easy to learn. • We also split up into groups I was in the roleplay it was so much fun! • We has lots of fun • You also learn plenty on the course like the difference between soundscape and music concrète so its worth a go.
Workshop dislike	<ul style="list-style-type: none"> • At my school we have been studying something called electroacoustic music. this is a workshop with Sounds that calls itself music even though it lacks instruments & notes two main things in music. personally I found it very boring

	<p>and struggled to understand how its music and why anyone would chose to listen to it. I enjoy most music but this I found extremely painfully boring. Since this is not music, I don't see why it is in our lesons. I found that the person leading us failed to win the majority of us over. I found this incredibly boring!</p> <ul style="list-style-type: none"> • The best bit was recording. We edited music on this software that didn't work. (should have got an apple) we got info from a website that had big gaps and colors that you couldn't read. The buttons didn't work.
--	---

2) Code Appreciation

Comments related to the liking of electroacoustic music were tagged with the code "appreciation".

Main findings

As in the category workshop like/dislike data for the same question has been collected already in the second questionnaire. However as in the other category, the comments coded with *appreciation yes or no* demonstrate the reasons for the participants' judgement, which have not been captured in the questionnaire.

Reasons for positive appreciation:

- can sound quite good / the most amazing music ever
- different to normal music
- the music is interesting / is a "cool, new thing"

Reasons for the lack of appreciation:

- goes on too long
- not my type of music
- difficult

Interpretation

Both categories offer interesting insights: that the music is described as a "cool, new thing" and "the most amazing music ever" shows that it is possible to enthuse young and inexperienced listeners for electroacoustic music with the help of the EARS II (P) curriculum. That the "music can sound quite good" is technically not a reason, because the comment simply states enjoyment of the

music. However, it shows spontaneous enjoyment of the music: one of the factors of appreciation. That electroacoustic music is “different to normal music”, that it is a “cool, new thing”, shows curiosity and openness for new styles. As this age group is, according to the open-earedness hypothesis, not very open for new styles, the teaching must have had an effect on the different groups.

The reasons for negative appreciation are also interesting. That the music “goes on too long” can be explained by the listening experience of the participants. As established in the first questionnaire, most participants listen to RnB, Hip hop or other pop music and are therefore used to a format of about three minutes per piece. Focusing on a piece of music for a longer time requires some training. However it is important to note that pieces ‘go on for too long’ can be avoided in educational contexts. A gradual increase in length could probably be a way to train the pupils to listen to longer pieces.

Full data set for Code Appreciation

	Appreciation yes	Appreciation no
CS02	<ul style="list-style-type: none"> • Overall I thoughrally enjoyed all the styles of music and would enjoy to do it again. • I've been learning about a cool new thing. It's called Electroacoustic music. • What I've been learning about is Great. I'd love to listen to it again. • Hi we have learnt the most amazing music ever called electro ecoustic music 	<ul style="list-style-type: none"> • No data has been coded with "appreciation no"
CS03	<ul style="list-style-type: none"> • I have been to a workshop about music with sounds. You may think it's a bit weird but once you get into it, it is quite fun. • I have done a workshop with music. It was fun and enjoyable. • I listen to music differently now and have enjoyed this workshop and hope that there is a second on. • Hi, I've been doing a workshop about music with sounds. It's called electrocusic (sic) music. It is when you take recorded sounds and put them together on a computer. There are 2 types of this music, and they are: Musique concrète (sic). That is when you are ment(sic) to listen to the rythm(sic), pitch, duration and timbre. Soundscape music is were you are ment (sic) to create an image in your mind with the music. It's great! • You will never believe where I have gone, yes, your right, a music workshop. It has been really fun, we found out about different types of music, you will never guess how many types there are. • I personally enjoyed finding out about soundscape music, • I prefer soundscape, because you use real life sounds from around where about you are and also from the environment. • My fave (sic) band, Pendulum use generated sounds in their music and I would love to try using generated in Music concrete (sic). • It is music made electricly(sic), for example I did a piece based on a sound walk. I first went with some mates and recorded the sounds I wanted to use with a bigish recordy type thing. That was fun. After that I went on the computers and used a programme called audacity to recompose the sounds and put them into my desired form. I wasn't really meant to use effects much but I did att(sic) the end to make it sound good. 	<ul style="list-style-type: none"> • This was quite a good course but I don't like electro-acoustic (sic) music. • The music is good but goes on to long

CS04	<ul style="list-style-type: none"> • I don't understand much but some tracks are 'OK.' I s'ppose • I like this type of genre(?). My favourite artist is pundulum. I also like the variation(?) of electro acoustic music (sic) I prefer listening to the generated sounds since they are more technical and computerised the sounds are composed (?) and describe (?) a particular rythm(sic) or beat, this creates a good drum and base song. 	<ul style="list-style-type: none"> • No data
------	--	---

7.3.6.5 Method-related codes

Code: comments>Motje

Main findings

Generally, the number of comments in this category is small; it therefore does not seem to have been a central issue to the participants. The comments do not vary much and in most cases can be classified as indifferent or good. Exception can be found in CS04, where one comment can be classified as negative.

Interpretation

Being the object of their own research is difficult for any researcher. However, as the decision to teach the case studies myself was an important compromise in the design of the study, the influence on the study needed to be taken into consideration. From the comments it cannot be concluded that there was a huge influence. In fact, most of the comments state that I have been to the respective school and led the workshop. They also include that there were a lot of explanations and that it was taught well. ("The teachers explained it really well too" CS02) The only critical comment stated that I did not win over the majority of the class. This comment only appeared in the livelier group of CS04, where I was teaching on my own (it also appeared in the beta study, where I was teaching alone, too). The participant who made the comment had also very strong beliefs in how to define music (CS04 "I enjoy most music but this I found extremely painfully boring. Since this is not music, I don't see why it is in our lesons. I found that the person leading us failed to win the majority of us over. I

found this incredibly boring!”). Looking at those comments in connection to the Workshop aim understood category and the Workshop like/dislike category, it is clear that this is the voice of one or two participants and does not express the opinion of the whole class. Therefore the influence of my person seems to have been relatively small.

Full data set for Code Comment>Motje

Code Comment>Motje

CS02	
Good	<ul style="list-style-type: none"> • The teachers explained it really well too
CS03	
Indifferent	<ul style="list-style-type: none"> • I have been learning about it music with Motje.
CS04	
Indifferent	<ul style="list-style-type: none"> • I hope Mo gets her PHD • I have had leassons with Mo • In music this woman from De montfort Uni came to teach us about stuff. Lol! • It was taught by Mo who taught us music. • Mo came to school to teach us about electroacoustic music. She is doing a PHD at your work. • Thanks Mo! • We had a visitor come to our school to teach us about Electrcooustic music. She came for a workshop.
Negative	<ul style="list-style-type: none"> • I found that the person leading us failed to win the majority of us over.

7.3.7 Summary of Findings

Learning with the EARS II (P) curriculum has been successful throughout the case studies: The evaluation of the data of the tests has shown that by learning with the EARS II (P) curriculum the participants reached the learning targets. This can be seen in the reflection of the central learning aims of curriculum in correct definitions and descriptions of electroacoustic music in the Letter test. Central for this is the development of a new vocabulary that enables the participants to describe their (new) listening experience and which has been shown with the Listening Response test.

While the findings described above can be seen as part of factual knowledge (according to the revised taxonomy by Anderson and Krathwohl 2001), the following results are part of conceptual knowledge that builds upon the findings above.

The Listening Response test shows further that learners have developed new listening strategies and aural analysis skills, which help the listeners to deal with the (new) listening situation. It is furthermore likely that the participants have developed a prototype of electroacoustic music, to which they can match new experiences of electroacoustic music in future. This was shown by the decrease of codes “sounds descriptions” and “film music” in the listening response test.

It is interesting that the results from the letter test do not match the results of Q2 in terms of factual knowledge and appreciation. While many correct definitions of electroacoustic music and concepts could be found in letter test, this was not the case for the second questionnaire. Additionally the letter test showed a higher enjoyment of electroacoustic music and the workshop than Q2. An explanation for this could be that the thinking process during the two tasks was different: While the task in Q2 was clearly “Name a composer” or “State the difference between soundscape and *musique concrète*”, the task to write a letter was much more complex. This means that the participants did not have to rely on factual knowledge, but rather on conceptual knowledge, in which they could deduce the facts they needed. This means that when embedded in

concepts the participants were able to remember facts. However when detached from the context they did not manage to do this.

The discussion of the correlations has shown that neither factual knowledge, nor gender, nor group choice influenced the participants' appreciation of electroacoustic music. The listening training, on the other hand, turned out to be the key to enhancing their appreciation.

Hence, it can be summarised that the Conceptual knowledge taught in the EARS II (P) curriculum influences the participants' appreciation of electroacoustic music.

8 Conclusions

8.1 Summary

This thesis has outlined the approaches and results of the investigation of the hypothesis that inexperienced listeners' appreciation of electroacoustic music can be enhanced by teaching the key concepts of this music.

Chapter 1 introduced the current status of music appreciation research by introducing the effect of giving additional information can have on musical preference and discussed the listeners' openness to new styles of music and the role of a prototype for musical appreciation.

Chapter 2 gave a detailed description of the EARS project, followed by the development of a musicological framework for this thesis. It further introduced other pedagogical projects dealing with electroacoustic music or music technology and concluded with a literature review regarding the teaching of music technology.

Chapters 3, 4 and 5 drew together the pedagogical foundation of the curriculum introduced in this PhD. While chapter 3 introduced general learning theories, chapter 4 has outlined how those theories have been relevant for the curriculum. It was shown that learning theories, such as the adaptation of Bloom's theory by Anderson and Krathwohl as well as Kolb's learning circle have been crucial for the development and testing of this curriculum. Chapter 5 introduced further details for the design of the curriculum by applying Bates' ACTIONS model to the development of the curriculum.

Chapter 6 then outlined the methodology of the study, introducing the three test phases of the study in detail. Test phase one investigated the navigation and design of the online learning environment, while test phase two focused on the content of the EARS II (P) curriculum. Test phase three then took the curriculum into three schools and tested it with the target group. Action Research as overall research method was introduced, followed by the explanation of the

teaching and lesson plan design. Further, Quantitative Content Analysis, the method of analysing data, was described, followed by a detailed description of the three tests used in the third test phase (Questionnaires, Listening Response Test and Letter Test).

Chapter 7 introduced the results of the three test phases. The results of test phase 1 established that the navigation and design are appropriate for the target group. Furthermore, it was ensured that the content of the curriculum was understandable for Key Stage 3 students (test phase 2). The results of test phase 3 confirmed not only the hypothesis outlined at the beginning of this thesis, but also the importance of the listening training and the teaching of concepts.

8.2 Original Contribution of EARS II (P) Curriculum

8.2.1 Electroacoustic Music Education

This PhD thesis has dealt with music educational and musicological topics related to electroacoustic music. Considering the definition of music education on the EARS website, it becomes apparent that all of the listed aspects have been relevant for this research:

“This discipline is concerned with teaching and learning aspects of electroacoustic musical appreciation, concepts, social and cultural contexts, creative opportunities, criticism, history and technology to interested people of all ages, backgrounds and abilities” (EARS Def. Music Education).

The following paragraphs will show how “teaching and learning aspects of electroacoustic music”, “concepts” and “creative opportunities” have related and contributed to this research. Based on this, the original findings of this PhD research will be discussed.

Teaching and Learning Aspects of Electroacoustic Musical Appreciation

The teaching and learning aspects of electroacoustic musical appreciation have been outlined in chapters 4 and 5 in great detail. The EARS II (P) study gave

valuable insights into the appreciation of electroacoustic music. Again, it is important to note that the listening training contributed most to the change in appreciation during the case studies.

Concepts

The content of the EARS II (P) curriculum is ordered and presented in concepts as opposed to history or other traditional approaches. These concepts are based on the main distinction between music with real-world sounds and music with generated sounds. With the help of these concepts typical genres, such as soundscape, *musique concrète* or electronic music, are introduced. The evaluation of the study showed that concept-based teaching helped the students to find their way in this unknown world of electroacoustic music.

Creative Opportunities

The teaching that took place during the EARS II (P) study included creative applications of the content. The participants could decide whether they wanted to learn more about soundscape or *musique concrète* by either composing a piece in the style of the genre they had chosen or to rethink everything they had learned by creating a role play discussing certain aspects of the music. Those and other creative tasks can be found in the EARS II (P) curriculum.

The literature review in chapter 2.4 outlined that pedagogical literature deals with electroacoustic music mainly in the form of “how to teach effectively using technology”. Projects introduced in this thesis that deal with electroacoustic or sound-based music either present basic research focusing on aspects which are not discussed in music education to the extent needed when teaching electroacoustic music (such as I/R methodology; listening research) or they use findings of music education and put them into another context (such as the EARS II (P) curriculum or Nasia Therapontos’s curriculum for Cyprus).

This can be shown in the following model:

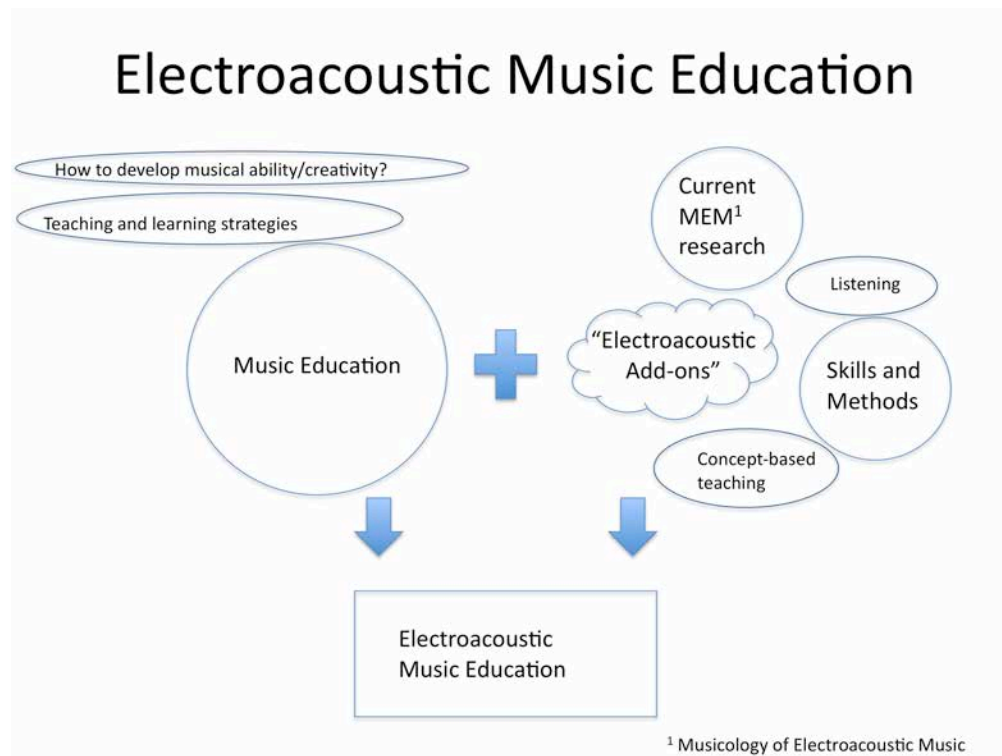


Figure 23. Electroacoustic Music Education

The model shows that there is current music education research that deals with questions such as ‘How to develop musical ability or creativity?’, as well as ‘Teaching and learning strategies’. Of course, music educational research deals with many more factors and disciplines than listed in figure 23, however these two questions have been found particularly important in the context of the EARS II (P) research. The model further shows so-called ‘Electroacoustic Add-ons’ such as the ‘current MEM research’ (MEM=Musicology of Electroacoustic Music). These feature a type of knowledge that Anderson and Krathwohl refer to as historically shared knowledge that was established “through a currently shared consensus within a discipline and is subject to change over time” (Anderson and Krathwohl 2001, 13). Furthermore, certain skills (conceptual and procedural knowledge), such as listening strategies, and methods, such as concept-based teaching, are important. Combined with the shared knowledge and the methods of music education (which is represented by the ‘music education’ bubble in the diagram) this results in Electroacoustic Music Education.

Subsequently, the definition of Electroacoustic Music Education should be

This discipline is concerned with teaching and learning aspects of electroacoustic musical appreciation, concepts, social and cultural contexts, creative opportunities, criticism, history and technology to interested people of all ages, backgrounds and abilities. It builds on the findings of traditional music educational research and combines these with specific methods (such as listening training) in order to enhance the appreciation of electroacoustic music.

This PhD project exactly fits into the category of Electroacoustic Music Education (EME), which can serve as an umbrella term for not only this PhD but also for the current educational projects at the Music, Technology and Innovation Research Centre (outlined in chapter 2.1).

However, there lies a danger in making this a discipline and giving it its own name. In the moment of naming, a distinction between one (music education) and the other (electroacoustic music education) is drawn. However, it has been established that some aspects of traditional music educational research are important for EME, while other aspects are not important for electroacoustic music education. More importantly, in view of the current climate of music education at a political level, it seems to be worthwhile to look at possibilities for collaborations between traditional music education and electroacoustic music education and how they might be merged in future in order to make electroacoustic music an essential part of a general music education. The following contributions of this PhD research could provide a way to realise this:

8.2.2 Musicological Contribution

In order to broaden the shared knowledge of music education regarding MEM, a framework of knowledge was created that can be integrated into the body of knowledge of music educators. This was done through the adaptation of Leigh Landy's Framework outlined in chapter 2.2 in which the current academic knowledge of electroacoustic music research was clustered with the aim to create an educational adaptation of this knowledge. Sorting this knowledge into concepts and creating a framework of important terms to be taught, provided the groundwork for the curriculum.

8.2.3 Music Pedagogical Contribution

Although the finding that a systematic build up of factual and conceptual knowledge can lead to successful learning is not new, the EARS II (P) curriculum offers for the first time a systematic approach for the teaching of electroacoustic music. The application of the adapted framework for educational purposes helped in the design of a curriculum that introduces electroacoustic music to inexperienced listeners and that also helps teachers to enhance their knowledge in this area.

The integration of EME into current curricula can be done by offering EARS II (P) to schools, universities and other institutions dealing with teaching and learning in order to broaden the current knowledge of music education practitioners with regard to the musicology of electroacoustic music. This could also be an answer to Burnard's question of a conceptual framework for teaching music technology (see chapter 2.4).

Through listening training and intensive dealing with sounds EARS II (P), offers a musicianship course for electroacoustic music. This answers Landy's question quoted previously in chapter 2.2 in this thesis:

“[...] the inevitable question follows: will there ever be a foundational musicianship course (or, in Schaeffer's terms, *sofège*) of sound-based music? I do think so, but not necessarily in the singular” (Landy 2007a, 230).

The elements for understanding the musical parameters of sounds, which then can lead to compositional activity, have been regarded as especially important to learn for inexperienced listeners. This embraces factors such as being able to categorise sounds or to develop listening strategies, and gaining knowledge of sound manipulation, just to list a few. These skills can, but do not need to lead to composition which is also a part of the curriculum. The EARS II (P) curriculum presents a similar framework to musicianship courses that normally deal with the learning of skills such as rhythm, pitch relationship, form understanding, improvisation, composition etc. (as outlined in an introduction to the Kodály musicianship method by Vinden and Vinden 2008, 2).

8.3 Discussion

The research carried out within this PhD project was based on the hypothesis outlined in chapter 1: The appreciation of electroacoustic music can be enhanced for inexperienced listeners by explaining the key concepts of electroacoustic music.

This thesis has outlined that

- Appreciation consists of the three elements liking, valuing and understanding
- Inexperienced listeners between 11 and 14 show the potential to develop an understanding of electroacoustic music following this approach
- The concept of listening strategies had a much stronger influence on the appreciation than anticipated.

Therefore schools should lay more emphasis not only on listening to music but also on how to listen to music, as this seems to be the key to an enhanced appreciation. The appreciation research introduced in chapter 1 did not investigate the teaching and learning of listening strategies, but rather looked at listening responses at a certain point in time. For example, in the Open-Earedness hypothesis study the participants either did or did not have listening strategies for the different music styles at the time of testing. It would be interesting to see how the results of this study would change if listening training had taken place beforehand. Bearing in mind that the researchers have found older participants less open to new styles, this could either mean that the participants have unlearned listening strategies or have – through daily practice – reinforced those commonly used.

Observations during working in primary schools with pupils in Leicester⁶¹ show that pupils in those schools are not familiar with the sound world of classical music either. Hence, listening training should be further developed so it can train listening to instrumental music as well as to electroacoustic music.⁶² Section 8.4 Further Research will outline how the listening training can be

⁶¹ Not in connection with this PhD project, but nevertheless relevant in this case.

⁶² The Sound and Music project 'Minute of Listening', which has been introduced in chapter 2.3 is a good start in this direction.

developed further into a tool that not only addresses electroacoustic musicians, but all musicians.

The finished EARS II website will provide a useful tool for music education in schools. Working with the prototype in the case studies has already shown the learning potential that can be reached in five hours of teaching. Imagining an incorporation of this tool into the regular curriculum, and considering its use over a longer period of time this tool could be much more powerful. Further, it would be a vital contribution to current teaching material and findings in current music education research. Teachers in the case studies were grateful for potentially having a tool that allows them to cover electroacoustic music without advanced prior technology skills. The teacher interviews as well as informal conversations with the teachers during the case studies have brought to light that if teachers are not familiar with technology they also do not approach the musical side of teaching music technology. EARS II (P)⁶³ can provide an answer to this. Furthermore, music technology syllabi focus more often on the technical aspects than on the musical aspects of the music. Therefore the prototype curriculum introduced in this thesis already fills a gap.

Moreover, the approach of blended learning (and potentially e-learning in the final version of the EARS II project) widens the classroom. The pupils will have the possibility to learn from home and independently in break times. Bearing in mind 'Josh's story' (Bolton 2008), it is possible to reach out to those pupils who have difficulties in following normal music lessons and/or who would not consider themselves to be musical.

Developing a cognitive prototype of electroacoustic music places electroacoustic music into an art context. The listeners might be familiar with some aspects of electroacoustic music due to sound effects in cinemas and computer games. However, they do not connect their experience with music.

Furthermore, teaching inexperienced listeners about musical aspects of sounds also widens the listeners' awareness of sounds in general. The case studies

⁶³ And certainly the final EARS II project.

have shown that the listeners were more attentive to details towards the end of the workshops. In a world which experiences a lot of acoustic pollution, be it through constant playing of music in shopping malls or the frequent use of mp3 players, it would be beneficial for listeners to be more aware of their sonic environment. Participants frequently described in informal conversations that this 'new way of listening' made them experience their school or their way home in a different way.

Learning with the EARS II (P) curriculum also offers the learner a different route into music. People without prior instrumental experience will be able to create a piece of music. At a time when there is little money set aside for instrumental music education, this might be a good way to engage inexperienced musicians into a creative process.

Any curriculum for electroacoustic music should be dynamic. Thus it is important to update the musicological framework regularly taking into account the vast development of technology. This way it will be ensured that any enhancement of the body of knowledge of music educators will not suffer from not being based on current developments and findings. The following section will outline where future research can tie in with this project.

8.4 Further Research

The following section draws together the possibilities of further research that might evolve from the research undertaken for this thesis. As this PhD project includes practical aspects of development and use of learning technology, follow-up projects that could enrich the finalisation of the EARS II (P) Environment will also be introduced.

8.4.1 Research Projects

In the outline of the original contribution stated that the EARS II (P) curriculum includes elements of a musicianship course. Following this would be interesting in order to see if other curricula for the development of musicianship would benefit from, or could contribute to, the EARS II (P) methodology. Listening is a skill that has been considered important for musicianship in many theories. Edwin Gordon's investigations in audiation show the potential by stating:

"Sound itself is not music. Sound becomes music through audiation, when, as with language, you translate sounds in your mind and give them meaning. The meaning you give to these sounds will be different on the occasion and will be different from the meaning given them by any other person. Audiation is the process of assimilating and comprehending (not simply rehearing) music we have just heard performed or have heard performed sometime in the past" (Gordon 1997, 3-4).

Although it is very probable that Gordon wrote these sentences having traditional art music in mind, this can still be applied to working with or listening to real-world or generated sounds. In addition, the following passage can be applied to listening to sounds:

"[...] compared to what is often called musical imaginery , audiation is a more profound process. Musical imaginery casually suggests a vivid or figurative picture of what music might represent. It does not require assimilation and comprehension of music, as does audiation" (Gordon 1997, 4).

Considering the separation of referential listening and reduced listening: Does that mean that referential listening equals what Gordon calls 'music imaginery'? Is then reduced listening the process of audiation in electroacoustic music?

When Gordon outlines how audiation can help composers, another interesting question arises:

"Composers who audiate, those who are not dependent on an instrument while composing, usually audiate several aspects of music they are creating concurrently, such as melody, harmony, phrasing, and instrumentation" (Gordon 1997, 7).

In the context of comparing electroacoustic and 'pen and paper' composition, very often the 'What you hear is what you get' effect (Feist 2008) is listed as advantage. It would be interesting to investigate whether the audiation skills of electroacoustic composers are less or more developed than those of composers who write instrumental music.

Gordon is not the only researcher who sees the potential in listening processes. Zoltan Kodály, who developed a tonal and rhythmical solfa (solfège) system, highly regarded the 'inner listening'. In his view of musicianship this probably is the most important factor for developing musical skills. As outlined in chapter 2.2 Schaeffer named his listening theories 'solfège' too. Although many researchers have returned to this since, a systematic methodology for teaching this to inexperienced listeners has not yet been developed.

In this context it would be also very interesting to look at the question of whether traditionally trained musicians could benefit from the EARS II (P) curriculum and its listening training? It can be argued that the awareness of pitch and rhythm in real-world sounds is a more abstract skill than when listening to traditional art music. Experience has shown that when parts of the listening training were used while working with inexperienced singers their skills in pitching and timing could be enhanced despite their failing to respond to the usual interval or call and response melody line exercises. An academic investigation would be necessary in order to establish reliable results for this.

Furthermore, with regard to the multi-language approach of the EARS project it would be worth investigating how learning with the EARS II curriculum⁶⁴ would differ when used in different countries.⁶⁵ Owing to different learning traditions, the pedagogical framework would probably need to be adapted to the cultural needs of the particular country. For this it would be interesting to see if the user-centred design approach could be extended further: While in the current EARS II (P) project the user-centred design mainly affected the design of the environment, it would be possible to use the method of future workshops as outlined in chapter 7.1 to allow pupils to influence the learning and teaching design and probably, as well, the content to some extent.

⁶⁴ Prototype and final version

⁶⁵ A cultural adaptation has been considered for the final stages of the EARS II project.

8.4.2 Practical Projects

The completion of the final⁶⁶ EARS II learning environment will follow the submission of this thesis seamlessly. With the EU grant 'Composing with Sounds' the Music, Technology and Innovation Research Centre and its EU partners have been given the opportunity to employ specialist software programmers. Further, a subsequent HEIF5 grant at the MTI has led to the employment of an e-learning developer. Therefore, the Sound Organiser software that would have been useful to this research will arrive shortly after its completion; the EARS II (P) architecture shown in this thesis will contribute as a proof of concept for the full EARS II website. Hence, the findings of this PhD research as well as the conception of the curriculum will feed into the full project which aims to publish a fully-functioning online learning environment along with an educational sequencing program by 2013.

Nevertheless some thoughts have been given to what this might look like. Bearing in mind Laurillard's media taxonomy and the need for feedback and communication, integrating elements of web 2.0 into the environment will be important. Certain parameters will be needed in order for it to function as a proper e-learning environment, such as general communication options (contact to a facilitator, forums and chats) and a learning system that allows saving results, to distribute outcomes (such as a gallery) and similar items.

The ABRSM (Associated Board of Royal School of Music) has announced the development of an application for aural training. As it has not been released yet it cannot be said with certainty what the actual content will be. Nevertheless, the objective of this application is to prepare the user for the aural tests in the ABRSM grade exams. As the syllabus for these does not include listening to sounds it is not very likely that this application will include this. A mobile application featuring a listening training with sounds aimed at inexperienced and experienced listeners could be conceived of. Similar to the Minute of Listening project, daily listening tasks could be provided over a certain period of

⁶⁶ (As far as a website can ever have a final version)

time. The learners responses could be recorded and sent to a research team. The data could be then evaluated and the influence of this listening training could be investigated.

8.5 Final Conclusion

Considering the analogy outlined at the beginning of this thesis, it can be said that the situation of the visitor to the new world has changed after having learned the content of the curriculum introduced in this PhD thesis: the learners are now prepared for visiting this new (sound) world. They have completed a 'language course' (listening training) and have a 'map' (concepts of electroacoustic music) at their disposal. They might still be overwhelmed by the new world in its fullness, but they will be much better orientated than the person described in chapter 1. Therefore the EARS II (P) curriculum proves to be successful in teaching inexperienced listeners to orientate in this new world of sounds.

Literature

Airy, S. and Parr, J. (2001) 'MIDI, music and ME: students' perspectives on composing and MIDI', *Music Education Research*, 3(1), pp. 42-49.

Anderson, L., Krathwohl, D. *et al.* (Eds) (2001) *A Taxonomy for Learning, Teaching and Assessing*, New York: Longman.

Barret, M. S. (2007) 'Music Appreciation: Exploring similarity and differences' in: Bresler, L. *International Handbook of Research in Arts Education*, Vol. 1, Dordrecht: Springer.

Bates, A.W. (2005) *Technology, E-Learning and Distance Education*, 2nd Ed, Oxon: Routledge.

Bauer, W. (2001) 'Students attitudes toward web-enhanced learning in a music education methods class: A case study', *Journal of Technology in Music Learning*, 2(2), pp. 2-20.

Berlyne, D. E. (1971) *Aesthetics and psychobiology*. New York: Appleton-Century-Crofts.

Bolton, J. (2008) 'Technologically mediated composition learning: Josh's story', *British Journal of Music Education* 25 (1), pp. 41-56.

Brown, S. (2007) 'A Critique of Generic Learning Outcomes', *Journal of Learning Design*, 2(2), pp. 22-30.

Burnard, P. (2007) 'Reframing creativity and technology: promoting pedagogic change in music education', *Journal of Music, Technology and Education*, 1 (1), pp. 37-55.

Cain, T. (2004) 'Theory, technology and the music curriculum', *British Journal of Music Education*, 21(2), pp. 215-221.

Capel, S., Leash, M. and Turner, T. (1999) *Learning to teach in the Secondary School*. London: Routledge.

- Child, D. (1997) *Psychology and the Teacher*, 6th Ed, York: Continuum.
- Cohen, L. and Manion, L. (Eds) (1994) Chapter 9 Action Research, in *Research Methods in Education* 4th Ed., London: Routledge, pp. 186-203.
- Colley, A. and Comber, C. (2003) 'Age and gender differences in computer use and attitudes among secondary school students: what has changed?' *Educational Research*, 45(2), pp. 155-165.
- Crickmore, L. (1968a) 'An Approach to the Measurement of Music Appreciation (I)', *Journal of Research in Music Education*, 16(3), pp. 239-253
- Crickmore, L. (1968b) 'An Approach to the Measurement of Music Appreciation (II)', *Journal of Research in Music Education*, 16(4), pp. 291-301.
- Deutsch, D. (1999) *The Psychology of Music*. Amsterdam: Academic Press.
- Dillon, T. (2003) 'Collaborating and creating using music technologies'. *International Journal of Educational Research*, 39 (8), pp. 893-97.
- Dillon, T. (2004) 'It's in the mix baby: exploring how meaning is created within music technology collaborations', in D. Miell and K. Littleton, *Collaborative Creativity, Contemporary Perspectives*, London: Free Association Books.
- Dykema (1936) → see Gehrkens 1936
- Emmerson, S. (1989) 'Composing Strategies and Pedagogy', *Contemporary Music Review*, 3(1), pp. 133-144.
- Feist, T. (2008) Sound als Kommunikationsprinzip elektronischer Musik am Beispiel des Pop, in Böhme-Mehner, T., Mehner, K. and Wolf, M. (2008) *Electroacoustic Music – Technologies, Aesthetics, and Theories – A Musicological Challenge*, Essen: Die Blaue Eule.
- Ferreira, G. M. d. S. (2007) 'Crossing borders: issues in music technology education', *Journal of Music, Technology and Education*, 1(1), pp. 23-35.
- Flick, U. (2009) *An Introduction to Qualitative Research*, London: Sage.

Gehrkens, Glenn, Dykema, Kwalwasser, McConathy, Pierce, Scholes, Smith, Van Dyke More (1936) 'What Is "Music Appreciation"? A Symposium', *Music Educators Journal*, 22 (4), pp. 15-17.

Glenn (1936) → see Gehrkens 1936

Gordon, E. (1997) *Learning sequences in Music: A Contemporary Music Learning Theory*. Chicago: GIA Publications.

Hickey, M. (1997) 'The computer as a tool in creative music making', *Research Studies in Music Education*, 8, pp. 56-70.

Ho, W-C. (2004) 'Use of information technology and music learning in the search for quality education', *British Journal of Educational Technology*, 35 (1), pp. 57-67.

Holland, D. (2012) 'Heightened Listening Skills as Access Tool', unpublished thesis (Master), De Montfort University.

Hooper-Greenhill, E. (2004) 'Measuring Learning Outcomes in Museums, Archives and Libraries: The Learning Impact Research Project (LIRP)', *International Journal of Heritage Studies*, 10(2), pp. 151-174.

Huang, H. (1997) 'Music Appreciation Class Broadening Perspectives', *Music Educators Journal*, 84 (2), pp. 29-33.

Hussey, T. and Smith, P. (2002) 'The Trouble with Learning Outcomes', *Active Learning in Higher Education*, 3 (3), pp. 220-233.

Jennings, J. (2003) 'Toy symphony: An international music technology project for children', *Music Education International*, 2, pp. 3-21.

Johnson, D. (2009) *The effect of prior information on musical preference rating*, unpublished thesis (Master), University of Jyväskylä. Available from: <https://jyx.jyu.fi/dspace/handle/123456789/21235> (30/04/2012)

Jungk, R. and Müllert, N. (1987) *Future workshops: How to Create Desirable Futures*. London, England, Institute for Social Inventions.

Kolb, D. A. (1984) *Experiential Learning experience as a source of learning and development*, New Jersey: Prentice Hall.

Kopiez, R. and Lehmann, M. (2008) 'The 'open-earedness' hypothesis and the development of age-related aesthetic reactions to music in elementary school children', *British Journal of Music Education*, 25 (2), pp. 121-138.

Krug, S. (2000) *Don't make me think! A common sense approach to web usability*. Berkley: Newriders.

Kwalwasser (1936) → see Gehrkens 1936

Landy, L. (1994) 'The "Something to Hold on to Factor" in Timbral Composition', in: *Contemporary Music Review*, 10 (2), pp. 49-60.

Landy, L. (2006) 'The Intention/Reception Project', in: M. Simony (Ed.), *Analytical methods of Electroacoustic Music*, pp. 25-53, Appendix on DVD, New York: Routledge.

Landy, L. (2007a) *Understanding the Art of Sound Organization*. Cambridge, Mass.: MIT Press.

Landy, L. (2007b) 'The ElectroAcoustic Resource Site'. *Journal of Music, Technology and Education*, 1(1), pp.69-81

Laurillard, D. (2002) *Rethinking University Teaching*. 2nd Ed., London: RautledgeFalmer.

LeBlanc, A. *et al.* (1996) 'Music Style Preferences of Different Age Listeners', *Journal of Research in Music Education*, 44 (1), pp. 49-59.

Lücke, M. (2008) 'Björk – Avantgardistischer Pop oder poppige Avantgarde' in: *Proceedings of XIV. Int. Kongress der GfM*, Leipzig, Oct. 2008, in print.

Martindale, C. and Moore, K. (1988) 'Priming, prototypicality, and preference', *Journal of Experimental Psychology: Human Perception and Performance*, 14(4), pp. 661-670.

Mayring, P. (2004a) 'Qualitative Inhaltsanalyse', in: Flick, U. *et al*, *Qualitative Forschung. Ein Handbuch*. Reinbek bei Hamburg: Rowohlt, pp. 468-474.

Mayring, P. (2004b) 'Qualitative Content Analysis', in: Flick, U. *et al*, *A companion to qualitative research*, London: Sage, pp. 266-269.

McConathy (1936) → see Gehrkins 1936

Mills, J. and Murray, A. (2000) 'Music technology inspected: good teaching in Key Stage 3', *British Journal of Music Education*, 17 (2), 129-56.

Moseley, D. *et al*. (2005) *Frameworks for Thinking. A Handbook for Teaching and Learning*. Cambridge University Press.

National Curriculum 1 (2007) Music. Programme of study for key stage 3 and attainment targets. Extract from The National Curriculum 2007. [www] available from: <http://curriculum.qca.org.uk/key-stages-3-and-4/aims/index.aspx>, Accessed 16/09/08

National Curriculum 101 (2007) Music. Programme of study for key stage 3 and attainment targets. Extract from The National Curriculum 2007. [www] available from: <http://curriculum.qca.gov.uk/key-stages-3-and-4/subjects/key-stage-3/music/programme-of-study/index.aspx?tab=1> Accessed 15/09/10

National Curriculum 2 (2007) Music. Programme of study for key stage 3 and attainment targets. Extract from The National Curriculum 2007. [www] available from: http://curriculum.qca.org.uk/key-stages-3-and-4/organising-your-curriculum/principles_of_curriculum_design/index.aspx, Accessed 16/09/08

National Curriculum 4 (2007) Music. Programme of study for key stage 3 and attainment targets. Extract from The National Curriculum 2007. [www] available from: <http://curriculum.qca.org.uk/key-stages-3-and-4/cross-curriculum-dimensions/technologymedia/index.aspx>, Accessed 16/09/08

National Curriculum 5 (2007) Music. Programme of study for key stage 3 and attainment targets. Extract from The National Curriculum 2007. [www] available

from: <http://curriculum.qca.org.uk/key-stages-3-and-4/cross-curriculum-dimensions/creativitycriticalthinking/index.aspx>, Accessed 16/09/08

Norman, K. (1994) 'Telling tales', *Contemporary Music Review*, 10(2), pp. 103-109.

North, A. and Hargreaves, D. (2008) *The social and applied psychology of music*, Oxford: Oxford University press.

Ofsted 1: Inspection Report: Judgemeanow Community College, 2-3 May 2007, p. 3. Available from: www.ofsted.gov.uk/provider/files/866787/urn/120287.pdf Accessed 09/02/12

Ofsted2: Inspection report: Abington High School, 13-14 October 2010. Available from: www.ofsted.gov.uk/provider/files/1451255/urn/120311.pdf Accessed 09/02/12

Palloff, Rena M. and Pratt, K. (1999) *Building Learning Communities in Cyberspace. Effective Strategies for the Online Classroom*. San Francisco: Jossey-Bass Publishers.

Perry, N. E. *et al.* (2008) 'Talking about self-regulated learning: Scaffolding student teachers' development and use of practices that promote self-regulated learning', *International Journal of Education Research*, 47, pp. 97-108.

Pierce (1936) → see Gehrkins 1936

Pitts, A. and Kwami, R. (2002) 'Raising students' performance in music composition through the use of information and communication technology (ICT): a survey of secondary schools in England', *British Journal of Music Education* 19 (1), pp. 63-74.

Reynolds, N. (2002) 'Computers, creativity, and composition in the primary school: an analysis of two compositions', *Australian Journal of Music Education*, 1, pp. 16-26.

Salaviuo, M. (2006) 'Social media as an opportunity for pedagogical change in music education' *Journal of Music, Technology and Education*, 1 (2-3), pp. 122-136.

Savage, J. (2005) 'Working towards a theory of music technologies in the classroom: how pupils engage with and organise sounds with new technologies' *British Journal of Music Education*, 22(2), pp. 167-180.

Scholes (1936) → see Gehrkens 1936

Seddon, F. (2006) 'Collaborative computer-mediated music composition in cyberspace', *British Journal of Music Education*, 23(3), pp. 273-283.

Seddon, F. and O'Neill, S. (2001) 'An evaluation study of computer-based compositions by children with and without prior experience of formal instrumental music tuition', *Psychology of Music*, 29(1), pp. 4-19.

Simoni, M. (2003) 'Project Lovelace: unprecedented opportunities for music education' *Organised Sound*, 8(1), pp. 57-60.

Smith (1936) → see Gehrkens 1936

Smith, E. (2009) 'Turntable and Computer Composition' in Wolf, M. (Ed.) *Proceedings of Sound, Sight, Space and Play 2009 Postgraduate Symposium for the Creative Sonic Arts De Montfort University Leicester, United Kingdom, 6-8 May 2009*

available from: <http://www.mti.dmu.ac.uk/events-conferences/sssp2009>

Smith, E. (2010) 'Electronic Dance Music and Academic Music. Genre, Culture and Turntables' in Wolf, M. and Hill, A. (Eds.) *Proceedings of Sound, Sight, Space and Play 2010 Postgraduate Symposium for the Creative Sonic Arts De Montfort University Leicester, United Kingdom, 2-4 June 2010*

available from: <http://www.mti.dmu.ac.uk/events-conferences/sssp2010>

Stauffer, S. (2001) 'Composing with computers: Meg makes music', *Bulletin of the Council for Research in Music Education*, 150, pp. 1-20.

Stollery, P. and Burne, C. (2000) 'Where do we go from here', paper presented at 24th ISME (International Society for Music Education) World Conference in Edmonton. Available from:

<http://homepages.abdn.ac.uk/wae006/petestollery.com/text/wheredowego.html>
(30/04/2012)

Stollery, P. and McPhee, A. D. (2002) 'Some perspectives on musical gift and musical intelligence' *British Journal of Music Education*, 19(1), pp. 89-102.

Thom, N. (2008) Die Erforschung technoider Tanzmusik – Ein historischer Abriss, in Böhme-Mehner, T., Mehner, K. and Wolf, M. (Eds.) *Electroacoustic Music: Technologies, Aesthetics, and Theories – a Musicological Challenge*, Essen: Die blaue Eule.

Turner, C.W., Lewis, J.R., and Nielsen, J. (2006) Determining Usability Test Sample Size. *International Encyclopedia of Ergonomics and Human Factors*, 2nd Edition, 3, Florida: CRC Press, pp. 3084-8.

Available from:

drjim.0catch.com/2006_DeterminingUsabilityTestSampleSize.pdf
(15/07/12)

Truax, B. (1999) *Handbook for acoustic ecology*, [WWW], available from:
<http://www.sfu.ca/sonic-studio/handbook/>

Tsabary, E. (2009) 'Which Aural Skills are Necessary for Composing, Performing and Understanding Electroacoustic Music, and to what Extent are they Teachable by Traditional Aural Training?' *Organised Sound*, 14(3), pp. 299-309.

Van Dyke More (1936) → see Gehrkens 1936

Vinden, Y. and Vinden, D. (2008) Songs for Singing and Musicianship Training. Introducing the Kodály Concept of Music Education, London: Kodály Centre.

Watson, P. (2002) 'The Role and Integration of Learning Outcomes into the Educational Process', *Active Learning in Higher Education* 2002, 3, pp. 205-219.

Weale, R. (2005) *The Intention/Reception Project: Investigating the Relationship between Composer Intention and Listener Response in Electroacoustic Compositions*. Unpublished thesis (PhD), De Montfort University Leicester.

Weale, R. (2006) 'Discovering How Accessible Electroacoustic Music Can Be: the Intention/Reception project.' *Organised Sound*, 11(2), Cambridge: Cambridge University Press, p. 189-200.

Webster, P. (1998) 'Young children and music technology', *Research Studies in Music Education*, 11, pp. 61-76.

Whitfield, T. W. A. and Slatter, P. E. (1979) 'The effects of categorization and prototypicality on aesthetic choice in a furniture selection task'. *British Journal of Psychology*, 70, pp. 65-75.

Wolf, M. (2008) 'EARS II Time for a new approach to electroacoustic music' in M. M. Marin, M. Knoche and R. Parncutt (Eds.) *Proceedings of the first International Conference of Students of Systematic Musicology (SysMus08)* Graz, Austria, 14-15 November 2008.

Articles from the ElectroAcoustic Resource Site:

Definition Music Education:

<http://www.ears.dmu.ac.uk/spip.php?rubrique68> (02/06/2011)

Definition Reduced listening: <http://www.ears.dmu.ac.uk/spip.php?rubrique1471> (01/11/2011)

Definition Referential Listening:

<http://www.ears.dmu.ac.uk/spip.php?rubrique1471> 01/11/11).

CD ROM

La musique électroacoustique by the Groupe de Recherches Musicales CD-ROM (Ina/GRM-Hyptique 2000)

Discography

Gilles Gobeil: Entre les deux rives du printemps. Published on: Trois Songs (2008) Audio CD. CA: empreintes DIGITALes.

Robert Normandeau: Clair de Terre – Ouverture. Published on: Clair du Terre (2001) Audio CD. CA: empreintes DIGITALes-

Pete Stollery: ABZ/A. Published on: Sonic Arts from... (2000) Audio CD. UK: MPS.

Rob Weale: Log Cabin. Unpublished Composition.

URL

The Prototype of the ElectroAcoustic Resource Site:
<http://www.dirbtuve.de/ears> (22/05/2012)

Drake Music Scotland:
<http://www.drakemusicscotland.org/about/> (27/10/11)

DSP02 by Notam:
<http://www.notam02.no/web/1997/07/dsp2-2/?lang=en> (02/02/11)

Kids on DSP:
<http://www.rjdj.me/music/Kids%20on%20DSP/> (22/05/2012)

Minute of Listening by Sound and Music:
<http://soundandmusic.org/projects/minute-listening> (17/03/2011)

Ohrenhoch, der Geräuscheladen:

<http://www.ohrenhoch.org/en.html> (20/04/2012)

Sonic Postcards by Sound and Music:

<http://sonicpostcards.org> (18/03/2011)

Sound in Bags (Klang in Tüten) by Dr Sound, Elbphilharmonie Hamburg:

vimeo.com/14457746 (02/11/2011)

SoundSon:

<http://music.columbia.edu/soundson/> (22/05/2012)

Software

TAMS Analyser: <http://tamsys.sourceforge.net/> (22/04/12)

Audacity: <http://audacity.sourceforge.net/> (21/05/2012)

Figures

Figure 1. Kolb's learning circle

Figure 2. Zone of Proximal Development.

From: www.learningandteaching.info/learning/constructivism.htm (24/06/2010)

Figure 3. Laurillard's Conversational Framework

<http://edutechwiki.unige.ch/en/File:Laurillard-conversational-framework.png>

(09/04/2012)

Figure 4. EARS II (P) and the continuum of technology-based learning (adapted from Bates and Poole 2003, 127)

Figure 5. Influence of Teaching Method, Data Collection and Results

Figure 6. ZIM paper

Figure 7-14 EARS II (P) Website pictures for test phase 1

Figure 15-19 Test phase 1, participants' website design

Figure 20 Homepage of EARS II (P) wiki

Figure 21 Start page of a Tutorial

Figure 22. Positive Correlations of Questionnaire 2

Figure 23. Electroacoustic Music Education

The Appreciation of Electroacoustic Music – An Empirical Study with Inexperienced Listeners

Motje Mareike Wolf

Volume 2/3

Submitted in partial fulfilment of the requirements for the degree of

Doctor of Philosophy

at De Montfort University
Leicester

March 2013

The Prototype of the EARS II Curriculum Teacher's Handbook

Table of Content

Structure of the EARS II (P) website	297
Introduction	298
Learning Objectives in the EARS II (P) curriculum	300
EXPLORE	302
Header Music.....	302
Learning Object: Difference between real-world sound and generated sound	303
Website Version	303
Classroom Version	304
Learning Object: Real-World Sounds.....	304
Website Version	305
Classroom Version	306
Soundscape.....	307
Learning Object: Soundwalk	307
Website Version	307
Classroom Version	308
Learning Object: Interview about Soundscape Music	309
Website Version	310
Classroom Version	313
Learning Object: Hildegard Westerkamp	315
Website Version	315
Classroom Version	316
Learning Object: Soundscape Analysis	317
Website Version	317
Classroom Version	319
Learning Object: Overview of electroacoustic music genres	319
Classroom Version	322
Musique Concrète.....	323
Learning Object: Sample.....	323
Website Version	323
Learning Object: Composer: Pierre Schaeffer	324
Website Version	325
Classroom Version	326
Learning Object: Why Musique Concrète?	327
Website Version	327
Classroom Version	329
Learning Object: Hip hop Introduction.....	329
Learning Object: Turntablism	331
Website Version	331
Classroom Version	332
Learning Object: Turntables as a musical instrument.....	332
Website Version	332
Classroom Version	333
Generated Sounds.....	333
Learning object: Composer: Karlheinz Stockhausen	333
Website Version	334

Classroom Version	334
Learning object: Sine Tone	335
Website Version	335
Classroom Version	336
Noise Music Tutorial.....	336
Website Version	337
Learning Object: Noise music - What's that?	338
Website Version	338
Classroom Version	339
Learning Object: Noise Artist: Merzbow.....	339
Website Version	339
Classroom Version	340
Learning Object: Noise Music - Try it out!	341
Website Version	341
Classroom Version	342
Tutorial Pop Music and Electroacoustic Music.....	343
Website Version	343
Classroom Version	343
Learning Object: Pop Music.....	344
Classroom Version	345
Learning Object: Techno.....	345
Website Version	345
Classroom Version	346
Learning Object: Overview Genres	346
Website Version	347
Classroom Version	349
Header Technology	349
Learning Object: Studio - composer workspace	350
Website Version	350
Classroom Version	351
Learning Object: What can you do with a sound in a studio?	351
Website Version	351
Classroom Version	352
Introduction to Audacity: How to compose a piece with sounds	353
Website Version	353
Classroom Version	363
Learning Object: How to record a sound.....	364
Website Version	364
Classroom Version	369
Learning Object: New Instruments.....	370
Website Version	370
Classroom Version	371
Learning Object: Noise Music Instrument: Crackle Box.....	372
Website Version	372
Classroom Version	373
Learning Object: Noise Music Instrument: ghettoSCREAMER.....	374
Website Version	374
Classroom Version	374

Tutorial Sound Manipulation	375
Learning Object: Listen to Some Effects	378
Website Version	378
Learning Object: Reverberation	378
Learning Object: Delay.....	378
Learning Object: Transposition	378
Learning Object: Filter.....	379
Website Version	379
Classroom Version	380
Header Theory.....	381
Learning Object: Performance Tutorial	382
Website Version	382
Learning Object: Improvisation	384
Website Version	384
Learning Object: Improvisation - try it out!	385
Website Version	385
Learning Object: Live Electronics Performance	386
Website Version	386
Learning Object: Mixed Work.....	388
Website Version	388
Learning Object: Sound Installations	388
Website Version	388
Learning Object: Sound Installation	390
Learning Object: Notation	391
Website Version	391
Classroom Version	391
Learning Object: Graphic Score.....	392
Website Version	392
Classroom Version	393
Learning Object: Sonogram	394
Website Version	394
Classroom Version	396
Learning Object: Graphic Score and Sonogram - Comparison.....	396
Website Version	396
Classroom Version	396
Learning Object: Musical Material.....	397
Classroom Version	401
LISTEN	402
Learning Object: Listening Challenges	402
Website Version	402
Classroom Version	404
Tutorial: Listening Training.....	405
Learning Object: Sounds Quiz	405
Website Version	406
Classroom Version	406
Learning Object: Listening to real-world sounds	406
Website Version	407
Classroom Version	408

Learning Object: Parameters of a sound	409
Website Version	409
Classroom Version	410
Learning Object: Causal Listening	411
Learning Object: Semantic Listening	412
Learning Object: Reduced Listening	413
Website Version	413
Classroom Version	415
Learning Object: Listen to electroacoustic pieces.....	416
MAKE.....	417
Learning Object: Composition Tasks	417
Website Version	417
Classroom Version	418
Action Cards.....	419
Tutorials.....	421
Soundscape	422
Musique Concrète	422
Electronic Music.....	423
Noise Music.....	424
Pop Music and Electroacoustic Music.....	424
Hip Hop	425
Terms introduced in EARS II (P) curriculum.....	426

Structure of the EARS II (P) website

EXPLORE

Music

- Real-World Sounds
 - Soundscape
 - Musique Concrète
- Generated Sounds
 - Electronic Music
 - Noise Music
- Pop music and Electroacoustic Music
 - Pop Music
 - Techno
 - Hip Hop
- Genres

Technology

- Studio
- How to Compose a Piece with Audacity
- Sound Manipulation
- New Instruments

Theory

- Performance
- Notation
- Collecting Musical Material

LISTEN

- Listening Training
- Listening Challenges
- Listen to Electroacoustic Music

MAKE

- Composition Tasks

Introduction

The curriculum introduces knowledge in small learning units called Learning Objects. These can either stand on their own or - combined with other Learning Objects – can build tutorials. The possibility to combine the Learning Objects to tutorials allows the teacher to customise tutorials for their group of learners.

In this book, the Learning Objects will be presented along the structure of the website. As this curriculum allows different ways of working with it, each Learning Object will be introduced in two versions. First the website version will be outlined and afterwards the same learning outcomes will be addressed assuming a classroom-based teaching situation. The classroom version is understood as suggestions for the teacher, how to introduce the topic by either using the website within the classroom (blended learning) or not to use the website at all.

The website version can be used for

- Independent learning at home or in break times
- For recapitulating knowledge learned earlier
- For researching on a certain subject (as part of classroom-based tasks for example)
- For preparing for a lesson (as knowledge repository for the teacher)
- To gain a quick overview of knowledge introduced in the curriculum
- To function as a repository for teaching material (pieces and other media).

The curriculum is split in different headers under which the information is organised. There are three overall headers: Explore, Listen and Make. The header Explore splits into three more headers: Music, Technology and Theory.

The general structure follows tutorials. A bottom navigation on all Learning Objects leads to the next unit of each tutorial. As each Learning Object has their own URL, the teachers can create their own navigation path through the curriculum by giving the class the URLs in their chosen order. This will be optimised in a future version of the EARS II project. In the following the three Explore-headers (Music, Technology and Theory) will be introduced.

The header Music contains information on different genres of electroacoustic music. It is organised in 'music with real-world sounds' and 'music with generated sounds'. It starts with an introduction of these sounds and an

exercise to learn to distinguish between the two types of sounds. 'Music with real-world sounds' introduces soundscape, musique concrète and hip hop music, 'Music with generated sounds' focuses on electronic music and noise music. The header further discusses parallels between pop music and electroacoustic music and offers a quick overview of the genres introduced in this header.

The header Technology contains information about the creative use of a studio. It does not focus on exact technical description of devices and instruments. Instead it focuses on sounds and what can be done with a sound using technology. Consequently, this section introduces sound manipulation and provides teachers and learners with a manual of how to use Audacity for compositional tasks.

The header Theory is not as theoretical as its name lets assume: It deals with the theoretical foundation of electroacoustic music, by discussing problems such as how to deal with music that does not have any performers any more or how to notate music with sounds.

The overall header Listen features extensively on listening tasks in order to teach the learners listening strategies. It further includes a structured listening training, as it has been shown in the research on which this curriculum is based that acquiring listening strategies for electroacoustic music is crucial for successful learning with the curriculum. Therefore it can be recommended to make it a habit to start lessons with listening tasks in order to enhance the learners' listening skills whenever possible.

The overall header Make contains composition tasks. However, this header will be enhanced with a full scale educational composition program (sound organiser) in the future of this project.

All tasks that involve sounds are easy to customise for the class' purposes by changing the sounds. Also, the classroom versions sometimes require sounds which are not available on the website. Sounds can be downloaded without charge under <http://www.freesound.org> Please be aware of the different licenses which are stated for each sound file.

The header Explore follows a colour-coded scheme (red: Music, blue: Technology and green: Theory). This colour-coded scheme will be featured in the text version of the curriculum as well. This enables the reader to see at one glance to which of the headers the Learning Object belongs. It is recommended to try to combine parts from the different headers wherever possible.

In the following section the overall learning outcomes for this curriculum will be outlined.

Learning Objectives in the EARS II (P) curriculum

The curriculum is based on the categorisation of knowledge by Anderson and Krathwohl (2001). Their taxonomy is a further development of Bloom's original taxonomy for learning objects. The overall learning outcomes are outlined below. The detailed learning outcomes for each learning unit will be stated individually for each in the next section.

Factual Knowledge

Knowledge of terminology:

- The learner can use musical vocabulary and meanings in the realm of electroacoustic music.

Knowledge of specific details and elements:

- The learner is familiar with a selected body of electroacoustic works. The learner can remember, recognise and recall pitch, rhythm, duration and analyse music and sounds heard. The learner can remember details of the genres soundscape and musique concrète and can define the difference.

Conceptual Knowledge

Knowledge of classifications and categories:

- The learner can differentiate real-world sound from generated sound, as well as reduced listening from referential listening.

Knowledge of principles and generalisations:

- The learner knows different ways of using sound in music.

Knowledge of theories, models and structures:

- The learner can remember the principal concepts and key figures of electroacoustic music.
- The learner can explain the issues in electroacoustic music concerning technology and theoretical discussions (e.g. performance, notation, ...).

Procedural Knowledge

Knowledge of subject-specific skills and algorithms:

- The learner can run the basic functions of Audacity. The learner has developed an awareness of the sonic environment.
- The learner can read a graphic representation of sound.
- The learner can distinguish between different listening strategies and use reduced and referential listening strategy.
- The learner can analyse a sound for musical parameters.

Knowledge of subject-specific techniques and methods:

- The learner can create a composition using sounds by planning the composition, generating the sounds (recording) and producing the composition (compositional process).
- The learner can record sounds and soundwalks.

Knowledge of criteria for determining when to use appropriate procedures:

- The learner can evaluate which listening strategy to employ.
- The learner can analyse the main elements of an electroacoustic composition.

EXPLORE

Header Music

Summary:

The information accumulated under the header music will introduce the learner to four genres of electroacoustic music: soundscape music, musique concrète, electronic music and noise music. The body of knowledge presented here is split into two concepts - 'music with real-world sounds' and 'music with generated sounds'.

Learning outcomes:

After completion the learner will have gained an overview of different genres of electroacoustic music. They will have built up a repertoire of electroacoustic music and will be able to distinguish between music using real-world sounds and music using generated sounds.

Knowledge:

Music using Real-World Sounds

 Tutorial Soundscape

 Tutorial Musique Concrète

Music using Generated Sounds

 Tutorial Electronic Music

 Tutorial Noise Music

E/A music and pop music

 Tutorial Hip Hop

Genres (Overview)

Learning Object: Difference between real-world sound and generated sound

(Called: "Start here" on website)

Header: Music

Summary:

This Learning Object introduces the difference between real-world and generated sounds.

Learning Outcomes:

Learner can differentiate between real world sound and generated sound.

Website Version

Have you ever listened carefully to sounds?

I'd like to introduce you to two types of sounds: real-world sounds and generated sounds.

A generated sound is a sound made with the help of technical equipment, for example with a computer and can sound like this:

Music Player with a generated sound

A real-world sound is a sound which is related to the real world. This can be an everyday-life sound like this:

Music player with a real-world sound

or something which is related to a real-world situation (e.g. a mobile phone ringtone is technically speaking a generated sound, however if it happens to appear in an everyday situation it is a real-world sound).

Can you distinguish between real-world sounds and generated sounds?

Take the Quiz (link to Sounds Quiz: Distinguishing real-world and generated sounds)

Classroom Version

Choose 10 different sounds (5 real-world sounds, 5 generated sounds). Play them to the class and give the sounds names. After naming the sounds, try to cluster them. After doing so, introduce differentiation between real-world and generated sounds (see above in website version).

If played as quiz:

10 sounds are played in random order. Only one sound is presented at the time.

Students have to answer:

- 1) Is it a real-world or a generated sound?
- 2) If it is a real-world sound: What is it?

The Class is divided in two groups. A sound is played, the group that raises a hand first may answer. (If a group raises a hand before the sound is played or finished, the other group scores.) If the wrong answer is given the other group can try. If the right answer is not given from both groups, they will receive hints. After guessing the sound is played again. This allows everyone to recap the knowledge about the sound (real-world or generated).

Learning Object: Real-World Sounds

Header: Music

Summary: This section aims to introduce two genres (soundscape and musique concrète), both using real-world sounds, but in totally opposite ways. It will further introduce the more alternative side of hip hop called turntablism, as it links back to the use of samples in musique concrète.

Learning Outcomes: After completing the learner will be able to answer the following questions:

What is Soundscape Music?

What is a Sound Walk

What is Musique concrète?

What is a sample?

What is Hip-hop / Turntablism

Further the learner will have acquired the following skills:

Development of listening strategies (reduced and referential listening)

Basic recording techniques for sounds.

Soundscape analysis (basic)

Website Version

This section aims to introduce you to two genres, both using real-world sounds, but in different ways. It also introduces you to Hip hop, find out what this has to do with music with sounds!

>>soundscape

Have you ever thought of everyday sounds being music?

In this section you will find a tutorial (=short course) about soundscape music. We will start by doing a soundwalk together. After that we will explain the basics about recording. You also have the chance to listen to a radio interview with a composer of soundscape music. We will introduce Hildegard Westerkamp. Finally, you can get more detailed knowledge about the structure of pieces and how to analyse them.

>>musique concrète

In this tutorial you will learn about different types of listening, you can hear a feature about the composer Pierre Schaeffer and we will discuss the question, why this music is called 'Musique Concrète'

>>hip hop

In this tutorial you will learn about hip hop and turntablism. You will also be able to listen to a few turntablism techniques.

Classroom Version

If necessary, this would be best introduced in frontal teaching. Another idea would be to use the overview of the different Genres.

Soundscape

Soundscape is music that consists of real-world sounds. It uses sounds often sounds from the environment and aims to create a new 'sonic environment' (sounding environment).

Learning Object: Soundwalk

Header: Music

Tutorial: Soundscape

Summary: This Learning Object introduces the learner to the concept of a soundwalk (going for a walk, listening actively to the sonic environment).

Learning Outcomes: After completion, the learner knows the concept of a soundwalk as well as has experienced a soundwalk.

Website Version

Soundwalk

“A soundscape composition is a piece of music which contains only real life sounds. The sound of a car or human voices or the song of a bird, these can be musical material as well as the sound of doors, water or weather.

To train their ears and to get new ideas many composers are doing soundwalks. This means they are going for walks and listening actively to all sounds that occur. Most composers record their soundwalks, so it is also a way to collect new material. Everything that is recorded can be used later to create a new sonic environment.

To create a sonic environment, or a soundscape composition, the composers copy their recorded material to a computer and select the best sounds. After this, he or she can edit it and combine it in new ways. This can sound very different, like this [...] or like this.”

Classroom Version

To raise the learners' awareness of their sonic environment start with some of the listening exercises from the Header Listen. This is to prepare them to be able to be still for a certain amount of time. Train them so they can listen as a group for 60 sec without laughing or deliberately making noises using the tasks in Header Listen – Listening Challenge.

Explain the concept of the soundwalk, going for a walk and experiencing sounds as done before in the classroom. Discuss with the class, what a good route would be for their soundwalk. Think about what you would hear on the way. The learners could draw a sound map before they go (mapping out the way marking interesting sounds they expect to hear) and compare this with what they have heard after returning.

Following this, you could discuss the concept of a soundwalk (ideally after listening to soundwalk or after recording their own soundwalk and listening back to it):

Learning Outcomes: The learners can explain the concept of soundwalk (i.e. referential listening), that it is possible to capture the world with sounds and that the sounds represent a picture of the world but not the world itself.

Questions can be: How did you feel when you were listening to the soundwalk? Did you feel that you were at a different place? Or was the place here? If you think of a photograph, what would be similar to the sound walk you just heard, what would be different? Do you think we could recreate the whole world with sounds? What can and what can't you capture with sounds (such as colours, smells, looks, ...)?

Learning Object: Interview about Soundscape Music

Header: Music

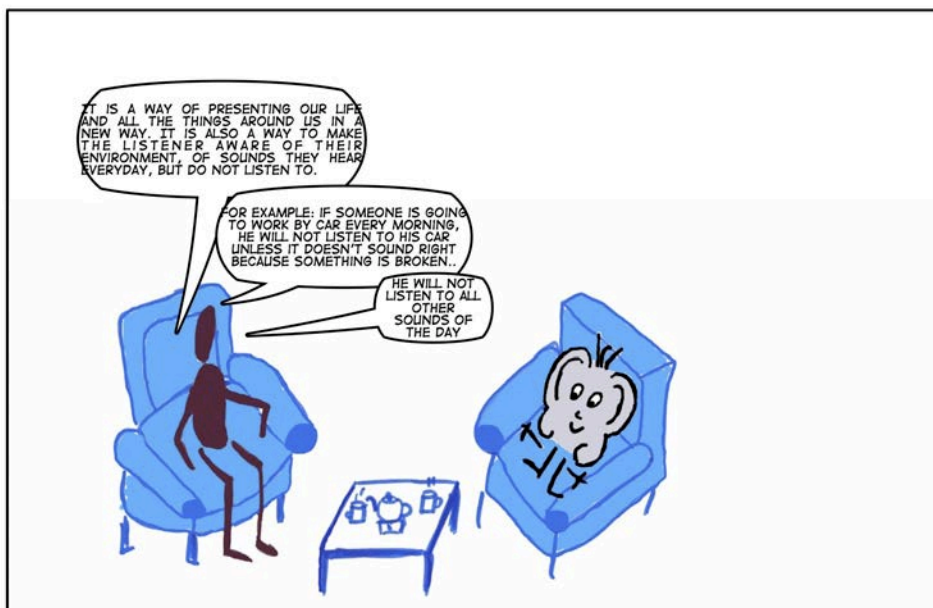
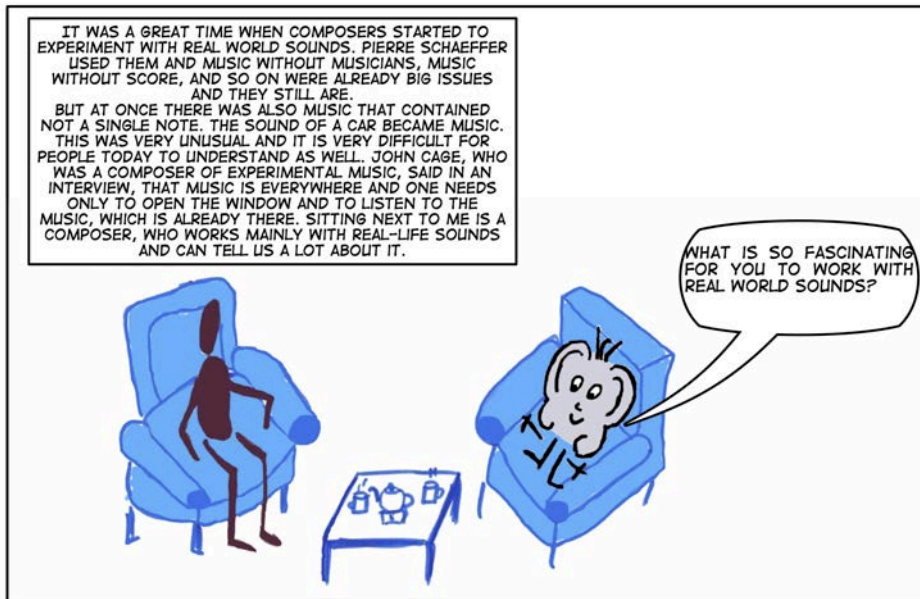
Tutorial: Soundscape

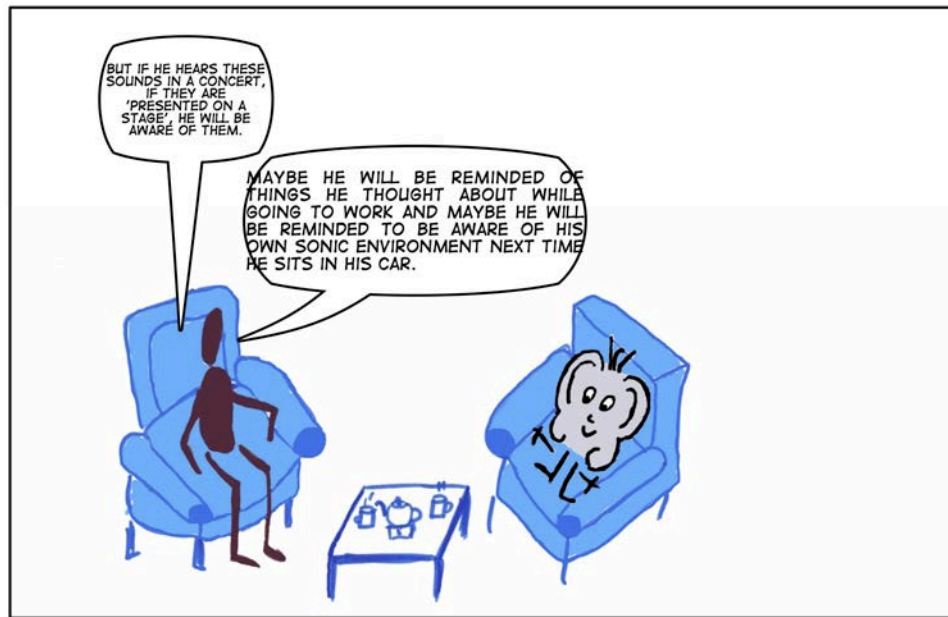
Summary: Discussion of the reasons for composing with sounds:

- Sounds can become music.
- Working with real-world sounds is a way to make listeners aware of their sonic environment.
- What is the sonic environment?
- Sounds of different cities are not the same.
- The sonic environment has always been important for composers (inspiration, imitation).
- Sounds have different connotations.
- The way of perceiving soundscape depends on personal cultural background
- When disappearing sounds are used again (such as the old telephone ringtone) this is called sound romance.
- What is sound design?
- World soundscape project.

Learning Outcomes: students will know the motives and reasons for working with real-world sounds and to what extent working with real-world sounds has changed music.

Website Version





Interview about Soundscape music. Frames 1-3.

Full text:

"It was a great time when composers started to experiment with real world sounds. Pierre Schaeffer used them before and music without musicians, music without score, and so on were already big issues and they still are. But at once there was also music that contained not a single note. The sound of a car became music. This was very unusual and it is very difficult for people today to understand as well. John Cage, who was a composer of experimental music, said in an interview, that music is everywhere and one needs only to open the window and to listen to the music, which is already there. Sitting next to me is a composer, who works mainly with real-life sounds and can tell us a lot about it.

EARS figure (E): What is so fascinating for you to work with real world sounds?

Composer (C): It is a way of presenting our life and all the things around us in a new way. It is also a way to make the listener aware of their environment, of sounds they hear everyday, but do not listen to. For example: If someone is going to work by car every morning, he will not listen to his car, unless it doesn't

sound right because something is broken. He will not listen to all other sounds of the day. But if he hears these sounds in a concert, if they are presented “on a stage”, he will be aware of them. Maybe he will be reminded of things he thought about while going to work and maybe he will be reminded to be aware of his own sonic environment next time he sits in his car.

E: Sonic environment is a good keyword. This word is in everyone’s mouth at the moment. It seems to be an important term in the electroacoustic music scene. How has this term become so important? And what does it actually mean?

C: There are many questions at once. Let’s start with the very last one. What is a sonic environment. If you close your eyes and focus only on one sense (listening), everything that you can hear is called your sonic environment. From place to place this sonic environment changes. The sounds of London and Beijing, for example, are completely different, and so are the sounds of New York and Delhi. However, not only does every town have a different sonic environment, but also every place. Just compare the sounds in your kitchen and in the living room at home.

Sorry, what was the other question?

E: How has this term – sonic environment – become so important?

C: First of all, it has not suddenly become important. If you consider the whole of music history (as we know it) imitating the environment has constantly been a source of inspiration and a challenge for composers. Just think about Vivaldi’s piece Four Seasons, where he tried to set spring, summer, autumn and winter into music...

However, you’re right – it is an important term: That is because now, it is possible not only to imitate but also to reproduce or to copy the environment. I can record it and can use the recorded sounds in compositions, and I can produce a completely new sonic environment, that doesn’t exist in the real world. And there is another interesting thing about sonic environments, which is similar to music but in a more intensive way: How you perceive a soundscape

composition depends very much on your culture. Despite the fact, that everyone perceives differently, and apart from the fact, that music can be different in different cultures, the sonic environment is – as I've said already – different in every town or at least in every country. So sounds have different connotations, while so-called “classical” music is more general. And sonic environments are changing! There are sounds, which disappear, such as the sound of a steam engines or an old telephone. If such sounds are used in pieces, we call this “sound romance”.

And the other way round: The industry develops new products and with it new sounds will be developed. This is called “sound design”. It is not so easy just to create a sound. There are many factors which must be included: What could the psychological reaction to this sound be? Does it fit in our environment? Just imagine there were a camera which didn't click like normal, but made a very loud noise like a horn. People wouldn't buy this camera.

E: If I wanted to get more details about soundscapes, sonic environments, soundwalks and so on, where could I get more information?

C: I would ask the people of the World Soundscape Project. This is a group of researchers and composers at Simon Fraser University in Canada. It was founded by R. Murray Schafer (not to be confused with Pierre Schaeffer!) in the late 60s/early 70s. They wrote a lot of publications and compositions, are conducting research and have a large tape library.

Classroom Version

Start with listening exercise (or remind the learners of previously completed listening exercises).

Discuss the sonic environment. These questions could help:

- 1) Which sounds are specific for this place?
- 2) Which sounds are specific for your city?
- 3) Which sounds are specific for city xyz?
- 4) Can you compare the sounds of the two cities?
- 5) What does working with sounds instead of musical notes offer to composers?

- 6) Listen to Hildegard Westerkamp: Harbour Symphony and discuss how sounds were used in the piece.
- 7) If you had to create a composition about your city, which sounds would you choose?

The last task could lead into a composition project.

Learning Object: Hildegard Westerkamp

Header: Music

Tutorial: Soundscape

Summary: Short biography of Hildegard Westerkamp, one of the leading composers in soundscape music.

Learning Outcomes: After completion the learners will be able to explain who Hildegard Westerkamp is and why she is an important person for soundscape music.

Website Version

Going out, taking a recorder and a microphone with you, sounds more like work of a journalist than of a composer. However, this is part of Hildegard Westerkamp's everyday life. Living and working in Canada, she records sounds and puts them together in a new way (as described in the soundwalk section).

Born in Germany, where she studied classical music, she moved to Canada, after meeting her husband on a trip over there. She continued her studies and came for the first time in her life into contact with soundscape music. Immediately fascinated by it, she started to experiment with sounds and studio equipment.

Today, she is one of the most important soundscape composers and has won a lot of prizes with her compositions. For one piece for example she recorded the sound of the harbour in Vancouver and composed the piece Harbour Symphony with these sounds. In another piece she used the recording of horns, no matter what kind of horn this was: car horns, fog horns, French horns, Alphorns... She called the piece "Fantasie for Horns II". You can hear those two pieces if you click below the picture.

Sound file 1 Harbour Symphony

Sound file 2 Fantasie for Horns II (see folder)

Sound file 3 Kits Beach Soundwalk

More information on Hildegard Westerkamp can be found on the composer's website:

<http://www.sfu.ca/~westerka/>

And on the website <http://emfinstitute.emf.org/materials/mccartney00/> which is built on Andra McCartney's PhD thesis.

Classroom Version

Blended Learning approach

1) Radio Show

Task: Create a radio show on Hildegard Westerkamp's life and work. You can use the EARS II prototype website to find information on her. The soundscape tutorial might help you. For the production of the radio show you will need to explore the Technology section as well. (Audacity tutorial, how to record sounds)

2) Poster competition

Task: Create a poster on Hildegard Westerkamp's life and work. You can use the EARS II prototype website to find information on her. The soundscape tutorial might help you.

3) Who am I?

Task: The whole class researches about Hildegard Westerkamp, Pierre Schaeffer, Karlheinz Stockhausen and Merzbow.

Four students will then act as the composers and the class needs to guess.

Possible scenarios:

1) Students say statements about themselves, that reveal some but little information. The class needs to guess who they are. Aim is to survive without being recognised as long as possible.

2) All four composers have to convince a committee (the class) that their music needs to be played in the next concert / that they want to have the next record contract. They have to act as the composers, therefore they have to know their life quite well.

Additional:

Listen to the piece Harbour Symphony

Questions: Why do you think this is called Harbour Symphony? What is a symphony? Can you create a symphony from real-world sounds?

Answers: Symphony is a Greek word and just means “sounding together”.

Question: Can you hear different sounds? Can you describe what you are listening to? How does this make you feel? Have you heard something similar before?

Learning Object: Soundscape Analysis

Header: Music

Tutorial: Soundscape

Summary: This learning object explains the difference of Hi-fi and Lo-fi soundscape and introduces the terms keynote sound, signal sound, sound event, sound symbol at hand of the example of the piece LogCabin.

Learning Outcomes: Students will be able to apply the following terms onto soundscape analysis: Hi-fi/Lo-fi soundscape; keynote sound; signal sound; sound event; sound symbol.

Website Version

Introduction

Sometimes it is important not only to listen to music but also to speak about it. This can be the case when one wants to know how a composer structured a work or what sounds are important for it. So that you don't always have to say “that sound there”, here are some useful words which can be used.

Listen to the piece LogCabin by Rob Weale:

1 Hi-fi/Lo-fi soundscape

In this composition consists of a lot of different sounds. As you can hear all sounds very clearly, we can call this piece a hi-fi soundscape. Hi-fi stands for

high fidelity.

If you cannot hear sounds very clearly and have for example a lot of hissing noise, it would be classified as a lo-fi soundscape. This could sound like this:

2 Keynote sound

Some of the sounds in the piece occur more than once. Here these sounds are wind, thunderstorm, a clock and fire. These sounds show you where you are, or which situation is currently being described in the piece. Therefore they are called keynote sounds. Listen to the keynote sounds in this part of the piece.

3 Signal sound

Other sounds – for example the door or the machine at the end of the piece – you hear only once or twice. They are different to the keynote sounds and show that something is happening. As this is like a signal for the story of the piece, these sounds are called signal sounds. Listen carefully to the next part of the piece. Do you hear footsteps in one of the examples?

AUDIO EX: sound file door (2:50, 3:24-3:29/30)

AUDIO EX: sound file footsteps

AUDIO EX: sound file machine sound (3:39 – 4:00)

4 Sound Event

If you listen attentively to the sound of the thunderstorm, which is one of the keynote sounds, you can hear that it is not a single sound. It contains a lot of smaller sounds: the rain, the wind, the thunder. These small sounds are called sound events.

Listen to this excerpt: AUDIO EX: sound file door

You can hear two sound events: the opening and closing of the door. If you imagine opening a door very slowly, you can hear a lot more sound events:

moving the handle, opening the door, the noise of the door shuffling over the floor and so on. However altogether these sound events make the sound of the action “opening a door”.

5 Sound Symbol

Some sounds have a special meaning to us. For example a bell: most people think about a church, religion, occasions like weddings or funerals and much more, when they hear a bell. Therefore these kinds of sounds can be called sound symbols.

A thunderstorm can be a sound symbol for a cosy evening inside your house, but also for fear and danger. Which sound symbols do you find in the piece?

Classroom Version

Listen to the piece LogCabin and let the class list the different sounds on the board.

Think about each sound and which function it serves.

Cluster the sounds after functions and give each cluster a name (such as sounds that describe xyz) and listen to the piece again.

Then introduce the terms Hi-fi/Lo-fi soundscape, keynote sound, signal sound, sound event and sound symbol.

Compare the terms to the names of the clusters: Were they similar? What was the difference? Which terms fit better?

Learning Object: Overview of electroacoustic music genres

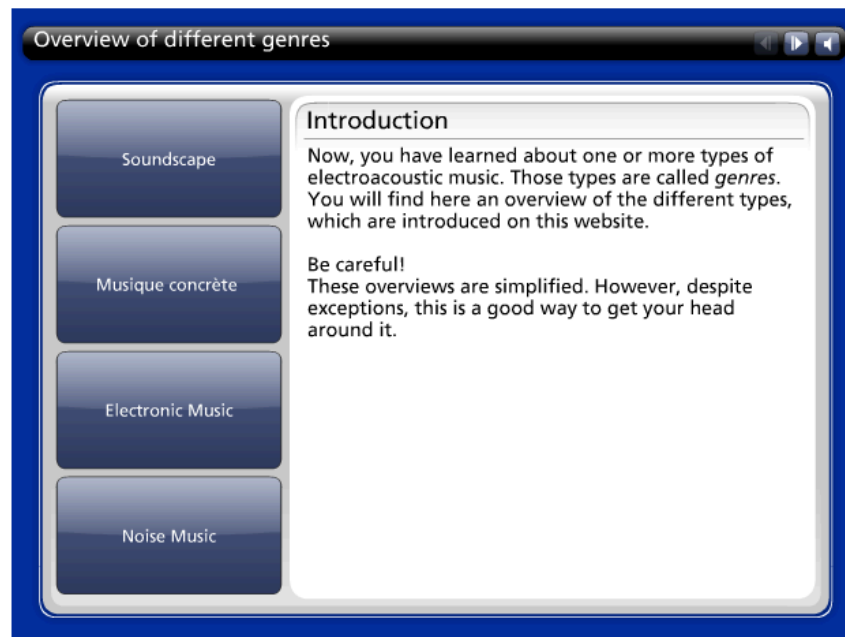
Header: Music

Tutorial: Soundscape, Musique Concrète, Electronic Music, Noise Music

Summary: Listing the similarities and differences of the four genres soundscape, musique concrète, electronic music and noise music

Learning outcomes: After completion the learner has recapitulated the main differences between the four genres soundscape, musique concrète, electronic music, noise music.

Overview Genres



Overview of different genres

Soundscape

Musique concrète

Electronic Music

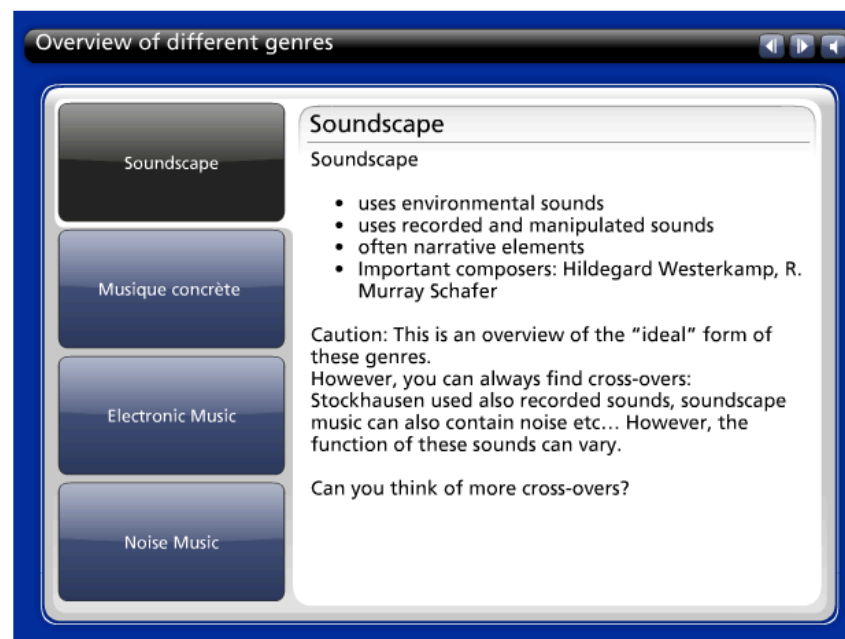
Noise Music

Introduction

Now, you have learned about one or more types of electroacoustic music. Those types are called *genres*. You will find here an overview of the different types, which are introduced on this website.

Be careful!
These overviews are simplified. However, despite exceptions, this is a good way to get your head around it.

Overview Genres



Overview of different genres

Soundscape

Musique concrète

Electronic Music

Noise Music

Soundscape

Soundscape

- uses environmental sounds
- uses recorded and manipulated sounds
- often narrative elements
- Important composers: Hildegard Westerkamp, R. Murray Schafer

Caution: This is an overview of the "ideal" form of these genres.
However, you can always find cross-overs: Stockhausen used also recorded sounds, soundscape music can also contain noise etc... However, the function of these sounds can vary.

Can you think of more cross-overs?

Overview Genres

Overview of different genres

Soundscape

Musique concrète

Electronic Music

Noise Music

Musique concrète

Musique concrète

- uses recorded real-world sounds
- uses manipulated sounds
- listening to sounds instead of the sound source
- Important composer: Pierre Schaeffer

Caution: This is an overview of the "ideal" form of these genres.
However, you can always find cross-overs:
Stockhausen used also recorded sounds, soundscape music can also contain noise etc... However, the function of these sounds can vary.

Can you think of more cross-overs?

Overview Genres

Overview of different genres

Soundscape

Musique concrète

Electronic Music

Noise Music

Electronic Music

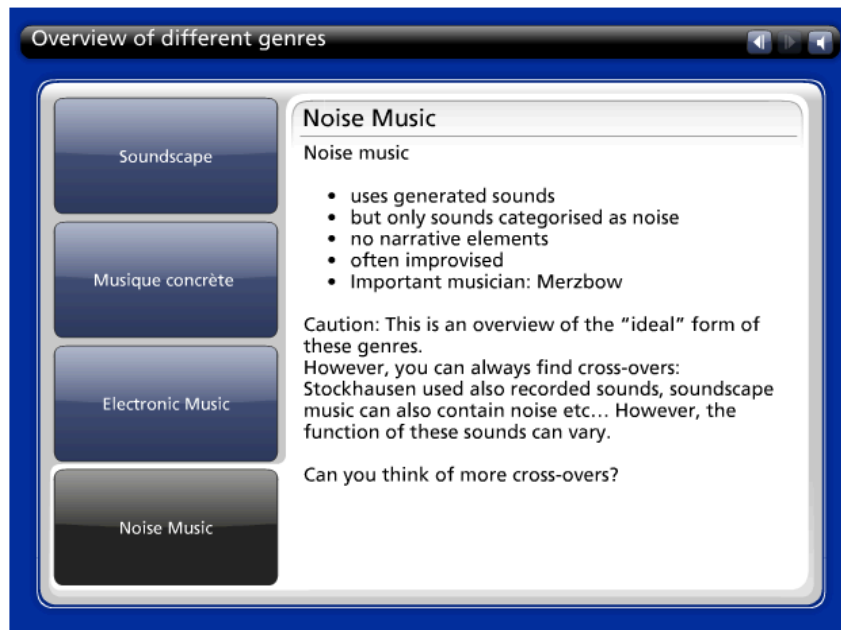
Electronic music

- uses generated sounds
- uses sound manipulation
- abstract sounds
- Important composer: Karlheinz Stockhausen

Caution: This is an overview of the "ideal" form of these genres.
However, you can always find cross-overs:
Stockhausen used also recorded sounds, soundscape music can also contain noise etc... However, the function of these sounds can vary.

Can you think of more cross-overs?

Overview Genres



Overview of different genres

Soundscape

Musique concrète

Electronic Music

Noise Music

Noise Music

Noise music

- uses generated sounds
- but only sounds categorised as noise
- no narrative elements
- often improvised
- Important musician: Merzbow

Caution: This is an overview of the "ideal" form of these genres.
However, you can always find cross-overs:
Stockhausen used also recorded sounds, soundscape music can also contain noise etc... However, the function of these sounds can vary.

Can you think of more cross-overs?

Classroom Version

At the end of learning about a genre, let the class formulate the essence of what they have learned in one sentence. Visualise the sentence in the classroom (for example writing it on a poster and stick it up the wall). Repeat this for all genres the class deals with. As soon as you have two sentences (for two genres) on the wall, discuss the differences and similarities. Continue doing this for each genre.

Musique Concrète

Musique Concrète uses real-world sounds focusing on the musical parameters of the sounds rather than the sound source itself.

Learning Object: Sample

Header: Music

Tutorial: Musique Concrète

Summary: This learning object explains what a sample is and how it can be used in music. It further functions as an introduction to the topic Musique concrète.

Learning Outcomes:

Learners can define 'sample'.

Learners have listened to samples.


Learners are familiar to the train sample, which is also used in the reduced listening training

Website Version

Music **Technology** **Theory**


Samples

This is the sample of a train.



Train sample by EARSII

A sample is a small piece of sound. It can be used to create a new piece of music and is mainly used in hip hop music. Our train sample would then sound like this:



Train sample hip hop by EARSII

Hip hop musicians use samples for example to emphasize their texts. Our sample could appear in a song about journeys or distance. You can hear songs like this everyday on the radio.

However, samples are used also in other music. Listen to this:

Full text:

This is the sample of a train:

(sound file train sample)

A sample is a small piece of sound. It can be used to create a new piece of music and is mainly used in hip hop music. Our train sample could then sound like this:

(sound file train sample hip hop)

Hip hop musicians use samples for example to emphasize their texts. Our sample could appear in a song about journeys or distance. You can hear songs like this everyday on the radio.

However, samples are used also in other music. Listen to this:

(sound file Pierre Schaeffer "Etude Aux Chemins De Fer").

In 1948, a man called Pierre Schaeffer composed the first piece of music which was made entirely of little pieces of sounds. He called his music "Musique Concrète". He also was very interested in what is the best way to listen to music.

Continue with this tutorial if you would like to learn more about different types of listening and the composer Pierre Schaeffer.

Learning Object: Composer: Pierre Schaeffer

Header: Music

Tutorial: Musique Concrète

Summary: This learning object deals with life and work of Pierre Schaeffer, the founder of Musique Concrète

Learning Outcomes: After completing the students know some facts about life

and work of Pierre Schaeffer and have listened and discussed some of his pieces. They will be able to find more information on him if required.

Website Version

Feature about Pierre Schaeffer:

(Music from the *Etude du Bruit*)

It was 1948 when the engineer, Pierre Schaeffer broadcast the first piece of Musique Concrète for the first time. 1948 was 3 years after the end of the 2nd world war and 60 years before the invention of the iPod. (Music from the *Etude du Bruit*)

This piece is called... It is one of the *Etudes du Bruit* or noise studies – realised by the composer Pierre Schaeffer. In 1948 he broadcast this piece for the first time. It was also the first time that this kind of music was presented to the public. For a lot of people this was absolutely shocking. How could this noise be called music?!

For Pierre Schaeffer and his colleagues at Radiodiffusion France (the French radio) the answer was clear: of course this is music.

(Music)

Schaeffer started to compose music with sounds instead of musical notes. His view was that every sound has a potential musical value; therefore it can be treated as musical material.

But who was this composer?

Pierre Schaeffer was a telecommunications engineer who worked at Radiodiffusion Française, a national radio broadcasting station based in Paris. He was interested in experimental music and after he worked for about 10 years at the radio he started to experiment with turntables. In changing the speed of the turntables and playing records forwards and backwards, he discovered that manipulation of sounds opens a new world of music. Another of his experiments was recording sounds at a depot of a railway station in Paris. He took the recorded sounds and put them together to create a piece called

Etude aux Chemins de Fer (or train study) which is nowadays known as the first piece of Musique Concrète.

He worked in a studio at Radio France and found the *Groupe de Recherche Musicale(s)* (GRM). This group of composers and researchers is still composing and dealing with research regarding this music. Schaeffer's interests were in the organisation of sounds and understanding how we listen to sounds including those in the environment.

Listening Tips: 1 symphonie pur un Homme seul
 2 Etudes de Bruit

Classroom Version

1) See Learning Object: Composer: Hildegard Westerkamp.

2) Discuss: How did Pierre Schaeffer change the world of music?

Question: Do you think it was important that Pierre Schaeffer was not a trained musician, coming from a conservatoire, but a radio engineer?

Answer: Yes, because musicians at a conservatoire are often (but not always) trained to make music in a certain way. So their imagination of music is very fixed. Coming from the outside and exploring music from a very different angle, Pierre Schaeffer didn't have any inner censorship and could experiment more freely than other people would have been able to do.

What do you think about the train study piece?

Question: Can you explain how the train piece was made?

Answer: Pierre Schaeffer went to a train station and took recordings of it. Back in the studio he listened back to his recordings and chose for those which he liked most. He then put them together to create the piece. Today, this is easy to do by using a computer program. Schaeffer was working with 78-rpm discs, a bit like a DJ would work today. Later he also used tape, so for combining

different sounds, he had to cut and paste the tape with scissors and glue.

Learning Object: Why Musique Concrète?

Header: Music

Tutorial: Musique Concrète

Summary: This Learning Object deals with the question, what the 'concrète' means in the name Musique Concrète introducing different ways to compose music: one going from abstract concept towards a concrete performance, one going from a concrete sound towards an abstract concept.

Learning Outcomes: Students understand the different ways of composing with sounds and composing with musical notes.

Website Version

Why Musique *concrète*?!

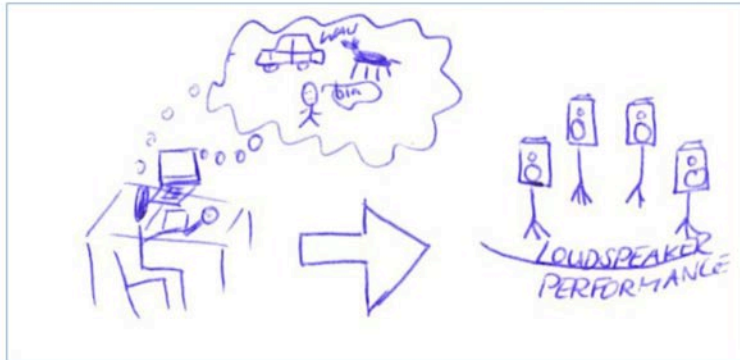
The music we are dealing with at the moment is called "Musique Concrète". As you have probably already guessed, this is French and means concrete music. Why 'concrete'? Pierre Schaeffer explained it that way: There are two ways of composing:



Composers for classical music like Mozart or Beethoven have an abstract concept for their piece in mind. 'Abstract' is something which is like an idea, and is the opposite to concrete. With help of the score and real instruments this piece can be performed. So from an abstract concept (an idea) it comes to a concrete performance. Of course you can't touch the music either, but you can see the musicians, the instruments, the conductor...

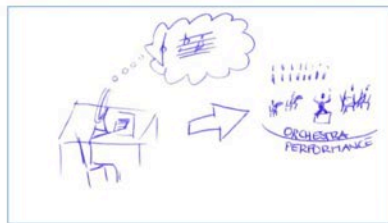
Why Musique concrète?!

Composers of Musique Concrète work a bit differently: They have recordings of concrete sounds on their computer (or whatever device they use for composing), for example the barking of a dog. However, they don't choose the dog's barking because they want to do a piece about barking dogs.



Instead they think that the barking of a dog (or any sound) has a musical value. So they use concrete sounds in their pieces, but they use them because of their abstract/musical value and create a piece of Musique Concrète. The performance, by the way, is also more or less abstract: Instead of musicians there are only loudspeakers on stage.

Why Musique concrète?!

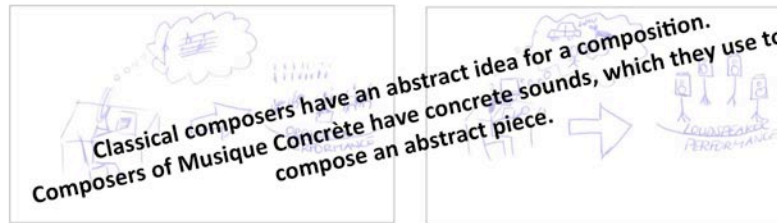


An abstract concept leads to a concrete music.



Concrete sounds lead to abstract music.
→ Musique concrète.

Why Musique concrète?!



An abstract concept leads to a concrete music.

Concrete sounds lead to abstract music.
→ Musique concrète.

Classroom Version

To prepare the class for the content: Think together with them about the name Musique Concrète. What could the word 'concrete' mean? Further, discuss the word abstract.

Print out or project the presentation from the website and work through.

What is the difference of the two approaches to composition. Do you agree about the difference? Can you think of a better name for Musique Concrète?

Learning Object: Hip hop Introduction

Header: Music

Tutorial: Hip Hop

Summary: This Learning Object gives an introduction into the hip hop culture.

Learning Outcomes: The learners will get a feeling for the culture; will hear

some hip hop music/sounds, will see some graffiti and break dance. After completion the learner will understand that hip hop is much more than the hip hop songs in the charts.

“Hip hop is much more than what you can hear on the radio. Hip hop is a culture. Hip hop fans or musicians wear a special fashion (picture of fashion), they have their own art (picture of graffiti), dance (break dance) and of course their own music (music).

Hip hop music often consists of samples of other music, it can sound like this (music), or like this (other music). All a hip hop musician needs is two turntables, some records, a mixing board and loudspeakers. Hip hop musicians are called DJs, which means Disc Jockey or turntablist. If someone is rapping over the beat, he or she is called MC, which means Master of Ceremony.

One of the fathers of Hip hop is called Afrika Bambaataa. He, as well as DJ Kool Herc and Grandmaster Flash, invented this music style in the late 70s in the New York Bronx. It was an underground movement: People came together for street parties and DJs put on music. While doing this, they experimented with how to play the records on their turntables. For example Grandwizard Theodore, another DJ, discovered scratching, when he was told off by his mother because of this “awful music”. He stopped the record with his hand and moved it back and forth, while she was talking... and discovered a fabulous new sound. At the street parties people started to dance, and step-by-step they developed their own dance style.

Today, hip hop is one of the main youth cultures. If you go through your town, you will probably see a lot of people wearing hip hop fashion, or you will see some graffiti. You will surely find hip hop CDs in every record shop.

Learning Object: Turntablism

Header: Music

Tutorial: Hip Hop

Summary: Introduction of Turntablism (Djing with records on two turntables using samples)

Learning Outcomes: After completion the learners will know that DJing is more than playing records. They will be familiar with the term turntablism as well as with different ways of playing a sample.

Website Version

Comic:

EARS Figure: Hello! What are you doing here?

DJ: I make music with turntables, that's called turntablism. All you need is two record players, a few records, a mixer and loudspeakers.

EARS Figure: That's all? How does this work?

DJ: Put a record on a record player and listen to it. If you find an interesting sound, play with it: Play it normally, slow down the record, or speed it up. Scratch it (in pulling it backwards very quickly) or play it along with another sound, for example a beat on the other record player.

EARS Figure: I'd never remember where the samples are on the record...

DJ: To memorise where the best samples on a record are, some turntablists put stickers on the record. Others imagine the record as a clock, and by putting just one sticker on top to mark "12" and using this as a landmark, they memorise on "which time" the samples can be found. I've recorded for you different techniques demonstrated on a speech sample:

Click on the players underneath the presentation

Sample original: (soundfile)

Sample slowed down: (soundfile)

Sample speeded up: (soundfile)

Sample backwards: (soundfile)

Sample scratched: (soundfile)

Classroom Version

Read the comic together and discuss the different ways to deal with a sample. Try it out in audacity (see sound manipulation).

Learning Object: Turntables as a musical instrument

Header: Music

Tutorial: Hip Hop

Summary: This Learning Object discusses the term musical instrument: A turntable can be used a musical instrument.

Learning Outcomes: The learners will know that the term musical instrument is not only for common instruments such as violin or piano, but can be extended to record players.

Website Version

Did you know ...

... that the record player and the records can be called the musical instrument of a turntablist?

A musical instrument?! A record player? You might think, that you can only play with it music that was recorded by someone else before ... Yes and no: Yes, you can use your record player just for playing records. Then of course it is not used as a musical instrument. However, the way turntablists use their record players is different: They create new pieces by combining samples of old pieces. And in doing so they use all the parameters, which occur in music: different pitches, different velocities, different volumes, different rhythms. So they use their record players as a musical instrument.

You can compare this to a piano player: Using the mechanics of a piano a pianist combines pre-set sounds (strings / keys of the piano), struck by hammers of the piano, to a piece. A turntablist uses the mechanics of a record player (=piano) to combine different pre-set sounds from records (=strings of

the piano), which are played in dropping the needle (=hammer), to a piece.

Classroom Version

Reading text on website. Discuss:

Are there other devices that can become musical instruments? Which role does the computer play when making music with it? Is it a musical instrument as well?

Generated Sounds

Header: Music

Learning Outcomes:

This section aims to introduce two genres using generated sounds: electronic music and noise music. After completing the learner will be able to answer the following questions:

- What is Electronic Music?
- What is a Filter?
- Who is the composer Karlheinz Stockhausen?
- What is Noise Music?

Further the learner will have acquired the following skills:

- Basic skills in sound manipulation

Learning object: Composer: Karlheinz Stockhausen

Header: Music

Tutorial: Electronic Music

Summary: Biography of Karlheinz Stockhausen, who was an important composer of electronic music in Germany.

Learning Outcomes:

After completion the learners will be able to explain who Karlheinz Stockhausen is.

Website Version

Very famous for working with sine tones and other generated sounds was the composer Karlheinz Stockhausen. He was a German composer and influenced not only other classical composers but also jazz and pop musicians.

His first electronic piece (called “konkrete Etüde”) he composed in Pierre Schaeffer’s studio in Paris. Back in Germany he continued to work with electronic sounds. He was especially interested in composing with generated sounds (while Schaeffer in France worked rather with recorded sounds), but was never a purist in what he did.

For example in his famous piece “Gesang der Jünglinge” he used the recorded voice of a young boy, manipulated it and mixed it with generated sounds. Stockhausen also composed pieces for piano and for choir, but his main focus was clearly on working with electronic music. His most famous work is the opera cycle “Licht” (light).

Classroom Version

See Learning Object: Composer: Hildegard Westerkamp.

Learning object: Sine Tone

Header: Music

Tutorial: Electronic Music

Summary: Sine tones are important musical material for electronic music. This learning object introduces what a sine tone is and how it sounds. It further introduces overtones (also known as harmonics).

Learning Outcomes: The learners know what a sine tone is. The learners have heard of the term overtone and know that the overtones of each sound and each tone change the timbre of the tone or sound.

Website Version

This is a sine tone. You probably know this kind of sound from your telephone.

Sound Example 1

Manipulated sine tones can sound like this: Sound Example 2

Compared with a violin or any other instrument, this sounds somewhat artificial. That is, because sine tones do not have any overtones.

A tone normally consists of a combination of a number of different tones. Depending on the number of overtones the timbre changes. If you think of a choir, they can all sing the same tone. But if the men's voices are added or taken away, the tone sounds different, although it is still the same tone! You have the same effect in different instruments. Just imagine that there are different tones within each instrument, which create a new tone. These different tones are called overtones. There is a sequence of tones which are natural overtones.

Overtone occur in any tone and any sound as well, except for sine tones. Here is a sound example that shows you the natural order of sine tones as they would occur in a piano tone. We cannot hear them as clearly as in this example, but depending on how many overtones resonate with a tone (or a sound) the character changes. This can be compared with a finger print.

Sound Example 3

That means: Overtones give a tone a special character, also known as timbre. As a sine tone has no overtones, one sine tone sounds as any other sine tone (however, volume, pitch and rhythm can be different). Despite this, it is possible to make music just with those tones. Listen to this piece, which was entirely created with sine tones:

Sound Example 4

Classroom Version

Overtones:

Hold down silently a key from the keyboard, then play in staccato the overtone sequence. The overtones should start to ring. This is a good way to demonstrate that overtones are part of any tone. Make sure the learners understand that violin and piano sound differently because, although the overtones are not different, there are more or less of different overtones.

Discuss the comparison to the finger print - do you find another metaphor?

Additional to the information given above:

Create sine tones in Audacity and try out different ways of sound manipulation.

Noise Music Tutorial

Header: Music

Summary: This tutorial will introduce noise music. Noise music is music that consists of sounds, which we normally classify as unwanted. The noise music artist Merzbow will be introduced and some tasks are guiding to create a noise music performance. Furthermore, the tutorial will demonstrate two noise music instruments.

Learning outcomes:

After completion of this tutorial students

- Know that there is noise music
- Have learned facts about Merzbow
- Have listened to different noise music pieces, in different styles
- Have tried out a performance by themselves.

Website Version

Noise Music is music that features those sounds we normally regard as noise. To find out more about this type of music and to listen to some examples follow this tutorial. After completion you will know the Noise Music artist Merzbow, you will have heard different noise music pieces and you will have done your own noise music performance.

Noise Music Tutorial

Noise Music - what is that?

Noise Music Artist: Merzbow

Noise Music Instruments

Listen to noise music pieces

Noise Music - Try it out!

Learning Object: Noise music - What's that?

Header: Music

Tutorial: Noise Music

Summary: This learning object introduces noise music. It will show that noise music does not necessarily need to be loud and will also familiarise the students with the term noise music and giving some listening examples.

Learning outcomes: After completion the learners have heard two different pieces of noise music and know that noise music consists of so-called unwanted sounds.

Website Version

If you think of the name 'noise music' - this can be very confusing. Normally you differentiate between noise and music. However, there is music, which uses noise as main musical material:

Listen to this piece by Merzbow:

Merzbow is a noise musician. He invented new instruments for this kind of music, but generally you can make noise music with anything. "Famous" noise music sounds are feedback, hiss or crackling noises. Those are sounds which come along with devices, objects or other sounds.

Noise music does not use real-world sounds, but generated sounds. The hum of a loudspeaker, the crackling of a faulty connection, the feedback of a short circuit etc. Although many people think that noise is loud, noise music can also be very quiet and delicate.

Listen to this excerpt by Jared Blum:

This sounds quite different, doesn't it?

Can you hear the different colours? The different pitches? The rhythms?

Listen to it again and try to explore this world of sound.

Many people argue about noise music. It is very hard to define. What is noise?

What is music?

Considering, that music consists of sounds we appreciate and noise of sounds we normally don't appreciate: Can noise be music? Why?

Fact is: Noise music exists and lets us explore another and probably very unusual world of sounds.

Classroom Version

To introduce the topic discuss with class:

What is the difference between sound and noise?

What is noise? What is sound? Can you think of a 'nice' noise?

(Noise can be sounds, but are rather classified as unwanted sounds)

Remind them of the listening training and especially of the fact that all sounds have different rhythms, pitches and durations, therefore can become musical material.

Play Jared Blum to them and ask the class for their opinion.

Play Merzbow to them and compare it to Jared Blum. How is the noise used in Jared Blum's example, how in Merzbow's?

Learning Object: Noise Artist: Merzbow

Header: Music

Tutorial: Noise Music

Summary: Merzbow is the leading Noise Music artist currently. This learning object introduces briefly his life and work.

Learning Outcomes: After completion the learners will know Merzbow and will have heard some excerpts of his music.

Website Version

Merzbow is the artist name for noise musician Masami Akita. He is from Japan and originally was a fine artist. He swapped this for making music, but did not care about any musical conventions and traditions. Today, he is touring all over the world with his noise performances.

Merzbow's music consists mainly of noise loops and feedback sounds, sometimes combined with acoustic instruments, synthesizers or voice. He doesn't want to create nice or pretty music, but wants to express himself with sound. His performances are very loud; many people need earplugs to listen to

his concerts. Even his CDs are often mastered on a far too high level (which means, that they sound louder than other CDs on the same volume in your stereo).

You can listen to excerpts of Merzbow's music here (opens in new window). Listening will be more fun if you listen to each excerpt a few times. Make sure, you're listening out for different pitches, rhythms and textures. More information on Merzbow can be found on his website.

Classroom Version

See Learning Object: Composer: Hildegard Westerkamp.

Learning Object: Noise Music - Try it out!

Header: Music

Tutorial: Noise Music

Summary: This learning object forces the learners creativity. A noise music performance shall be devised after an introduction to three different noise sounds. The learners further have the possibility to build an instrument.

Learning Outcomes: After completions the learners will have experienced a noise music performance. They will have constructed their own instruments and thought about how to use it creatively.

Website Version

Noise music is made from sounds that we regard as disturbing or unwanted.

For example:

- The hum of a fridge
- the sound of drill
- the sound of a feedback loop
- and so on.

You might think, well these are everyday noises, I'm not really interested. However, have you ever listened carefully to those sounds? There is a lot going on in these three audio examples. The fridge is more a steady hum, while the sound of the drill has several pitches and goes up and down. You also can hear different rhythms in this sound. The feedback loop has a complete different timbre than the other two sound files. Can you think of more noisy things which make interesting sounds?

Go and find "noisy things". This could be a drill (be careful in using it!), a piece of kitchen foil, an old humming loudspeaker, a radio on a "wrong" frequency, an electric tooth brush, and so on. Get these things together and explore their sounds. Listen carefully to each of your items. Which of these instruments is louder, which creates interesting textures, which sound well together, which don't? Try to create a short improvisation with these instruments.

After that you could build your own instrument:

You need: 1 loudspeaker, 1 microphone, 1 amplifier, a 9 Volt Battery.

1. Connect the loudspeaker to the amplifier.
2. connect the microphone to the amplifier.
3. Connect the amplifier to the battery.

How to play it: Hold the microphone near to the loudspeaker. Adjust volume on amplifier, if possible. Try out, what happens when you move the microphone. Does the tone change when you are moving it faster or slower, nearer to or further from the loudspeaker?

You can also try to cover your loudspeaker with kitchen foil. If you place random light objects (such as paper clips or nails or small plastic balls) on the foil and move the microphone toward the loudspeaker, what will happen? You can also try to cover your loudspeaker with kitchen foil. If you place random light objects (such as paper clips or nails or small plastic balls) on the foil and move the microphone toward the loudspeakers, what will happen? If you'd like to build your own amplifier, please check out the website [How To Make Stuff](#) or the [Makezine](#). The [Makezine](#) always comes up with a lot of creative DIY electronics ideas, so this is definitely worth checking out.

Classroom Version

Search for noise sounds in the classroom. Listen to them and analyse them for their musical parameters.

After that follow the description of the noise music improvisation as well as the building instructions of the website.

Tutorial Pop Music and Electroacoustic Music

Header: Music

Tutorial: Pop Music and Electroacoustic Music

Summary: This tutorial aims to show the parallels of pop music and electroacoustic music. Although the sounds of electroacoustic music seem to be very different, the same techniques and to some extent also the same sounds can be found in pop music.

Learning Outcomes: After completion the learner can explain the similarities of pop music and electroacoustic music.

Website Version

Learning that electroacoustic music is often made with the help of computers and uses electronic sounds, many people think pop music, such as techno. This is not far off: find out more about differences and similarities between pop music and electroacoustic music, as well as techno and electroacoustic music. At the end this tutorial links to the Hip Hop tutorial:

- Pop Music and Electroacoustic Music
- Techno
- Hip Hop Tutorial

Classroom Version

This classroom version included the learning objects 'Pop Music' and 'Techno' as well as the Tutorial 'Hip Hop'.

Task: Find parallels between electroacoustic music and pop music.

Split class into groups, each group works on one of the following topics:

- Hip hop/turntablism and musique concrète
- DJing and the use of their devices as musical instruments
- Producing pop music and the use of the studio
- Techno and electronic music
- Pop music and listening situation (acousmatic listening, probably rather advanced)

Each group works for a certain amount of time, while researching the website for the missing information. The output can be presented in

A) a gallery of pictures:

The groups draw a picture of their research findings. The pictures are exhibited in the classroom and everyone can have a look at it. Then each group explains their picture to the rest of the class.

B) a talk:

The group needs to prepare a short talk (set time limit according to the number of groups). Everybody who has been part of the group should actively participate in this talk.

Learning Object: Pop Music

Header: Music

Tutorial: Pop Music and Electroacoustic Music

Summary: This learning object outlines the differences and similarities between pop music and electroacoustic music.

Learning Outcomes: After completion the learner will be able to explain that pop music has a lot in common with electroacoustic music: the use of the studio (studio albums!), listening situation, cross-over musicians (Björk, Aphex Twin, Brian Eno).

Website Version

Pop music has many things in common with electroacoustic music.

For example electronic instruments are often used in pop music. This is not only the electric guitar, but also the sound of synthesisers and instruments like the Hammond Organ are brought to the wider public through pop music. Today, most of the studio albums are made with the help of computers. Sounds are manipulated and instruments are sampled. The listener is used to hearing the music through loudspeakers without seeing any musicians. While recording an album, the role of the producer has changed. In the early days of recording the main task was to make sure that the recording had a good quality. Today, there

are so many possibilities to change the sound after the recording that the producer can have an artistic influence. Also interesting to mention is, how we listen to pop music. In most of the cases we are listening to this music over loudspeakers/headphones (from CD, mp3-player, radio...) without finding it strange not to be in the same room as the actual band or musician. In fact, most of the studio albums we listen to are not possible to realise on stage because of the huge impact of the computer. However, if someone goes for the first time to an electroacoustic concert, where pieces are presented in the same way (without musicians, “just” from CD), people are confused. Can you imagine, why? Important musicians who have been influenced by electroacoustic music composition techniques are Björk and Aphex Twin as well as Brian Eno.

Classroom Version

See tutorial start.

Learning Object: Techno

Header: Music

Tutorial: Pop Music and Electroacoustic Music

Summary: Techno uses similar listening situation to electroacoustic music concerts. Techno uses similar sounds.

Learning Outcomes: After completion the learner can outline the differences and similarities of techno and electroacoustic music.

Website Version

Looking closer to the genre techno, what is similar to electroacoustic music? Let's start with the performance. A techno performance normally happens in a club, where people dance to the music. This is different to an electroacoustic music concert where people usually sit in a concert hall on chairs and purely listen to the music.

However some things are similar about this: The DJ is a musician, who is not

playing a musical instrument and is not playing notated music. They perform the music normally with a laptop, which becomes a musical instrument, sometimes adding devices such as samplers, kaos pads and so on. This means that both the techno DJ and electroacoustic composer work with technological equipment as musical instruments'

S/he also plays fixed media pieces or improvises with pre-recorded samples, a technique we know already from electroacoustic music.

Another important difference is the use of a very dominant beat, which you find only occasionally in current electroacoustic music.

Classroom Version

See tutorial start.

Learning Object: Overview Genres

Header: Music

Tutorial: Soundscape, Musique Concrète, Electronic Music, Noise Music

Summary: This learning object gives the differences and similarities of the four genres soundscape, musique concrète, electronic music and noise music at one glance.

Learning Outcomes: After completion the learners have compared the four genres and can recall the differences and similarities.

Website Version

The image displays two screenshots of a website interface, each showing an overview of different music genres. The interface has a dark blue background and a white content area. At the top of each screenshot is a title bar that says "Overview of different genres" with navigation arrows on the right. On the left side of the content area, there are four buttons: "Soundscape", "Musique concrète", "Electronic Music", and "Noise Music". The right side of the content area contains the details for the selected genre.

Overview of different genres

Electronic Music

Electronic music

- uses generated sounds
- uses sound manipulation
- abstract sounds
- Important composer: Karlheinz Stockhausen

Caution: This is an overview of the "ideal" form of these genres.
However, you can always find cross-overs: Stockhausen used also recorded sounds, soundscape music can also contain noise etc... However, the function of these sounds can vary.

Can you think of more cross-overs?

Overview of different genres

Musique concrète

Musique concrète

- uses recorded real-world sounds
- uses manipulated sounds
- listening to sounds instead of the sound source
- Important composer: Pierre Schaeffer

Caution: This is an overview of the "ideal" form of these genres.
However, you can always find cross-overs: Stockhausen used also recorded sounds, soundscape music can also contain noise etc... However, the function of these sounds can vary.

Can you think of more cross-overs?

Overview of different genres

Soundscape

Musique concrète

Electronic Music

Noise Music

Noise Music

Noise music

- uses generated sounds
- but only sounds categorised as noise
- no narrative elements
- often improvised
- Important musician: Merzbow

Caution: This is an overview of the "ideal" form of these genres.
However, you can always find cross-overs: Stockhausen used also recorded sounds, soundscape music can also contain noise etc... However, the function of these sounds can vary.

Can you think of more cross-overs?

Overview of different genres

Soundscape

Musique concrète

Electronic Music

Noise Music

Soundscape

Soundscape

- uses environmental sounds
- uses recorded and manipulated sounds
- often narrative elements
- Important composers: Hildegard Westerkamp, R. Murray Schafer

Caution: This is an overview of the "ideal" form of these genres.
However, you can always find cross-overs: Stockhausen used also recorded sounds, soundscape music can also contain noise etc... However, the function of these sounds can vary.

Can you think of more cross-overs?

Classroom Version

After completion of a tutorial, write down the main features of the genre on a large sheet of paper. Hang the sheet on the wall and let it be visible throughout the further progression. After completion of the next tutorial, do the same until you have a short summary of all genres you would like to compare.

Discuss with the class if they see differences and similarities in the genres, they have discussed. If needed you could guide them to the distinction of real-world and generated sounds.

Header Technology

Summary: Learners will receive an induction in different types of equipment, instruments and devices which can be found in a studio. This section does not aim to give the learner a complete course in studio techniques or to teach all electronic instruments, but to give a general overview.

Learning outcomes:

After completion learners will

- Have received a brief introduction into the studio
- Be able to record their own sounds
- Know about how to use a Zoom H2
- Be able to compose a piece in Audacity
- Know how to create a library with their own sounds
- Know basic sound manipulation techniques and have listened to examples.

Content:

1 Studio - composer workspace

2 What can you do with sound in a studio?

3 Audacity Tutorial: How to compose a piece with sounds?

4 How to record sounds?

5 New instruments

6 Sound Manipulation Tutorial

Learning Object: Studio - composer workspace

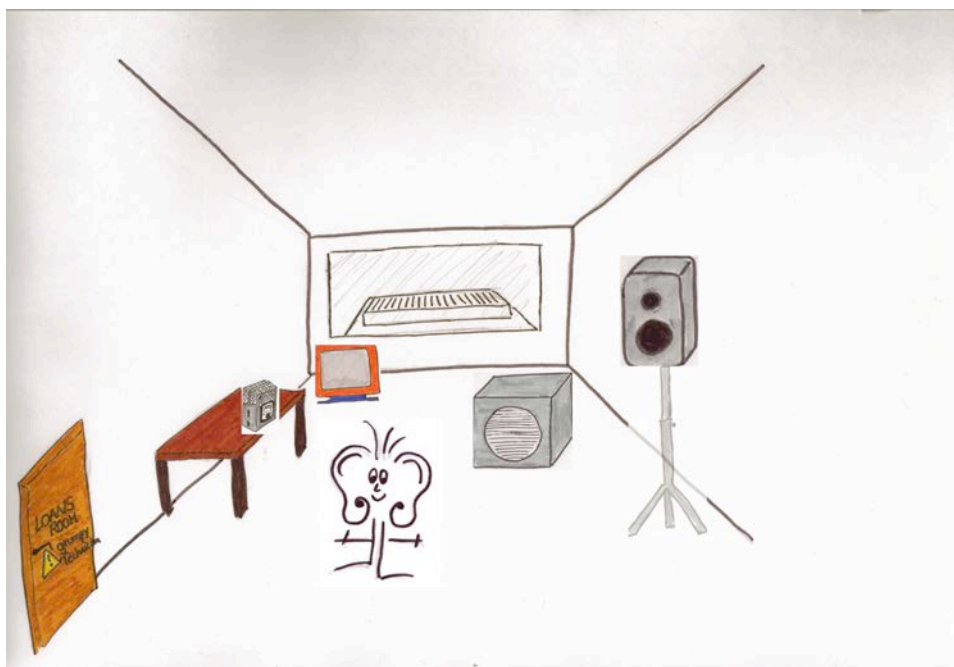
Header: Technology

Tutorial: Studio

Summary: In this learning object it will be shown very briefly that the studio is not a fixed place that looks the same all the time.

Learning outcomes: After completion the learners will know that the studio is the creative workspace of an electroacoustic composer and can be adapted for any musical needs.

Website Version



A studio is the work room of an electroacoustic composer. There is no such thing as “the studio”. It depends very much on what you would like to do in the studio. If you’d like to record some sounds or a band or any musician in a studio, you will need different equipment than in a studio which is used for composing acousmatic music. So there are different studios for different purposes. Today most of the work can be done at home on a laptop, however, in the earlier days of electroacoustic music, composers were dependent on a

studio place, as the technology was much too expensive to have at home.

Classroom Version

If possible it would be a good idea to visit a local studio and to get an introduction to it from an expert.

If your school happens to have a studio available, take your class over there and think about what equipment you would need to record a band.

Learning Object: What can you do with a sound in a studio?

Header: Technology

Tutorial: Studio

Summary: This Learning Object shows what can be done with a sound in the studio. It focuses on recording and different ways of playing sounds. Further it is touched on sound generation.

Learning outcomes: After completion the learners will know how to record a sound, and will know more about the different ways to playback sounds, after recording. They also will also be able to distinguish between loudspeaker types, and will know what a loudspeaker orchestra is.

Website Version

Recording sounds: To record sounds you need a recording device. This can be a tape recorder, a handheld digital device (such as a Tascam or Zoom H2) or a computer set up with an audio interface and a microphone. Depending on your chosen recording device you need something to record on - a storage device. For a tape recorder this would be tape, for handheld digital devices memory cards, as you know them from digital cameras, for your computer this would be the hard drive. You also need a microphone. Most of the handheld digital devices have inbuilt microphones, however it is possible to attach an external, preferably better microphone, if you'd like to record in better quality.

Tape recorders and DAT recorders usually don't come with a microphone, so you would need to attach one. If you are going to record outside it is good to have a wind screen (also sometimes called dead cat) to cover up your microphone, otherwise you will have a lot of noise from the wind on your recording. It is obvious that you need to connect your microphone with your device using the appropriate cable. This can vary from device to device.

Play back sounds: Recording sounds without listening to them doesn't make sense, so: For playing back sounds you need, among other things, loudspeakers. There are different kinds of loudspeakers and they all sound a bit different. Some speakers are better for high frequencies (called Tweeters) and some better medium frequencies (called mid-range speaker) and some for low frequencies (called subwoofer). Sometimes you can see 2 holes in speaker cases, one with a smaller speaker (on the top), which plays the high frequencies, and one with a bigger speaker (on the bottom), which plays the low frequencies. Both of them also play the mid-range frequencies, so you will be able to hear all frequencies of your sound. Which loudspeaker is playing which frequency range depends very much on the set-up of your system. If you just listen to music at home on your PA, you normally cannot influence much. If you are in a studio, it is possible to define the frequency band for every loudspeaker you would like to use. Using a lot of different loudspeakers can also influence how the performance of a piece of music sounds: There are loudspeaker orchestras - a collection of loudspeakers which are placed in the room in a certain way. The acousmonium in Paris (picture) is probably the most famous example for this.

Generating sounds: To generate a sound you need a sound generator. This can be an instrument, such as a synthesizer, or a digital sound generator on a computer. Audacity for example does basic sound generation.

Classroom Version

Present knowledge to class as preparation for the Introduction to Audacity.

Introduction to Audacity: How to compose a piece with sounds

Header: Technology

Tutorial: Audacity

Summary: This tutorial gives a basic introduction into composing an electroacoustic piece using the main functions of Audacity used as sequencer program (not as recording program). It shows how to compose a piece with sounds, to value the musical parameter of sounds in practical session, to use the knowledge they have acquired about electroacoustic music before. It is split into 7 learning units.

Learning outcomes: After completion learners will be able to

- Open and save a project in Audacity
- To import and export sounds in Audacity
- To edit, arrange and manipulate sounds in Audacity
- To do basic mastering to finish the piece in Audacity
- To be aware of structuring a piece

Website Version

Composing a piece - Audacity Tutorial

How to compose a piece with sounds

Introduction

No matter how you have collected your sounds, it is then possible to work further with your material - to edit it:

This tutorial will explain how to edit sounds and how to compose an electroacoustic piece using the program Audacity, which is available online and available free of charge. The general structure of such programs is very similar, so once you have learned to work with one, it is not difficult to switch to another. There are many more sequencer programs available, such as *ProTools* and *Logic* for Mac and *Cubase* for Windows.

- After completion of this tutorial you will be able to:
- Open and save a project in Audacity
- To import and export sounds in Audacity

- To edit, arrange and manipulate sounds in Audacity
- To do basic mastering to finish the piece in Audacity
- To be aware of structuring a piece
-

If you have not yet installed Audacity on your computer, it would be a good idea to do this now. You can get Audacity free of charge.

Audacity - Working with Sounds 1

How to start:

Open Audacity.

The first thing you need to do is to save your file. The file is called project.

To save, go to File > Save Project.

Audacity will save your project as two different files. One is the session file, called filename.aup, the other one is the data folder called filename_data.

With the session file you can open your project, the data folder contains all the sounds you have used. Basically the session file loads up all the sounds from the data folder, this is kind of a library. So if you delete the data folder you will still be able to open your project, but you won't be able to play it as all sounds have been deleted and the project will be destroyed. It is also very important that you don't change the name of the data folder, as the session file will only search for a data folder which has exactly the same name as the session file.

After you have saved your project you need to insert your sound file.

Go to "Project" > Insert Audio. Then select the sound you would like to open and click ok. After this, your sound will appear on the screen as a track. You should be able to see the wave form of your sound now. The wave form shows you how loud or quiet the sound is. Although you cannot see how the file really sounds, but you will be able to orientate along the wave form, which is important for the next steps of cutting and pasting.

Audacity - Working with Sounds 2

Selecting material (select, choose, sort, cut, paste, delete)

On the top panel on the very left you find 6 buttons, of which 2 are of interest

now:

1 Cursor tool: You need to select the cursor every time you want to select some of your sounds. In case you would like to select your sound and it does not work, check if you have selected the cursor first.

2 Magnifying glass tool: With the magnifying glass you are able to zoom in and out of your sound. Select the magnifying glass and click onto the sound you would like to magnify. With ctrl click on Mac and right click on Windows you can zoom out again.

Listen back to your sound file and decide which part of it you like. If you like something or think something sounds interesting, select it with the select tool. Then go to edit on the top menu > split. Your selected sound will appear now in a new track. (In case you have selected a sound on the very end of your track, don't get confused if you can't see the split sound: it will always appear at the beginning of the new track. (Tip: Don't use the scissors tool if you want to cut out a sound. If you click on the scissors, this will delete your selected sound. This is different to other programs, such as Logic, where the scissors tool just splits the sound without creating a new track.)

If you like a sound, it might be worth keeping it. You do that via exporting it, so you can save it on your computer and you will be able to use it later again. This way you can build up your own sound library. To do this, select the sound you wish to export and click on file on the top menu > export. You can choose between export as .wav and export as .mp3. .Wav files have a better sound quality than .mp3 files, so it is recommended that you save your file as .wav. The sound quality is important if you want to do sound manipulation with your sound - the higher the quality the more is possible.

>>Tip: When you save your sound file give it a distinguishing name (not sound.wav or thingy.wav, but waterdrops.wav or carcrash.wav), so you will be able to remember which sound it was when you click through your sound library without listening back to every sound.

Once you have finished selecting sounds you like, you can start to work with

them. One important rule for working with several sound files is — each sound file should have its own track. This way you can define separate settings for each sounds. (If you don't understand this now, don't worry, it will become clearer in a minute, just remember: one sound file per track.)

Audacity - Working with Sounds 3

Now a new tool will be of interest: The time-shift tool (arrow). This tool allows you to move your sound file in time. This way you avoid that all your sounds will appear at once and you can start to “sequence” the sound. (Picture of a “sequenced” Audacity session.) You could sort your sounds like this:

Rain sound

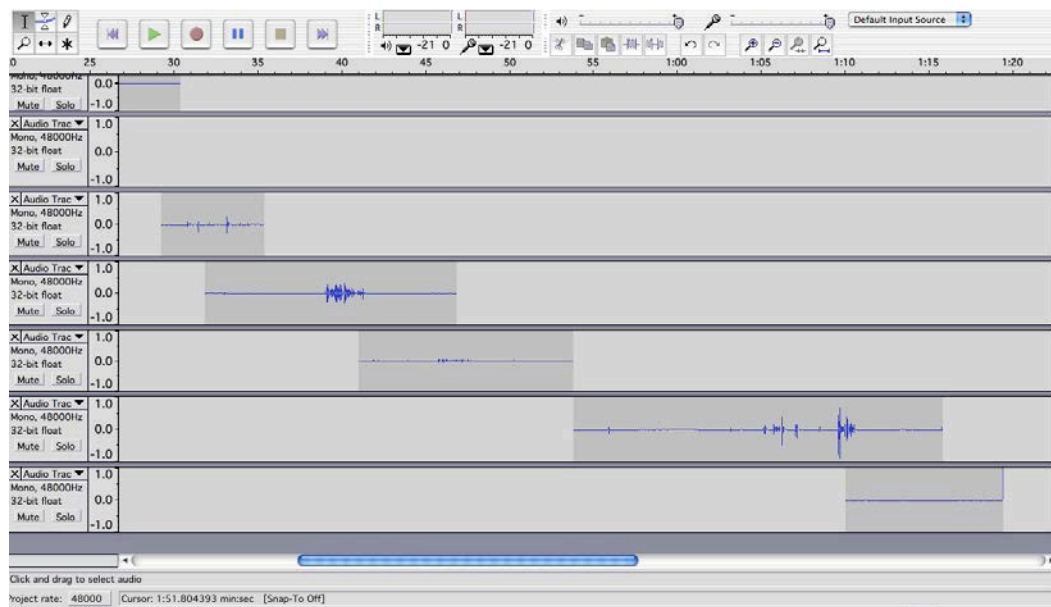
 Bell sound

 Thunderstorm sound

 Siren sound

If you listen to the piece LogCabin, you can hear that different sounds are appearing at different times and this is how it was done.

Although this is not the screen shot of the piece LogCabin, the arrangement of sounds would look like this:



Screen Shot Audacity project of a participant of the case studies.

As you can see - each sound has its own track.

Envelope tool: To have a smooth transition between the sounds it is important that you fade them in and out. You can use the fade in and fade out effect from the effect menu. The Envelope tool (triangle shape) can help you to do this as well. You might need to practice a little bit to get a nice fade out depending on your computer skills. However, it is important that you don't have a too abrupt fade out, otherwise it might sound as if you had cut the sound off (except you wish to have this effect). The other thing the Envelope tool does is changing the gain of the sound. This means you will be able to boost the gain (to make it louder) or to reduce it (to make it quieter). Try out, what effects you can achieve with it. There are two tools left.

The **Draw tool** (pen) allows you to change the waveform manually to correct unwanted noises in the sound.

The **Star tool** enables the multi tool mode which allows you to combine the other five tools.

Audacity - Working with Sounds 4

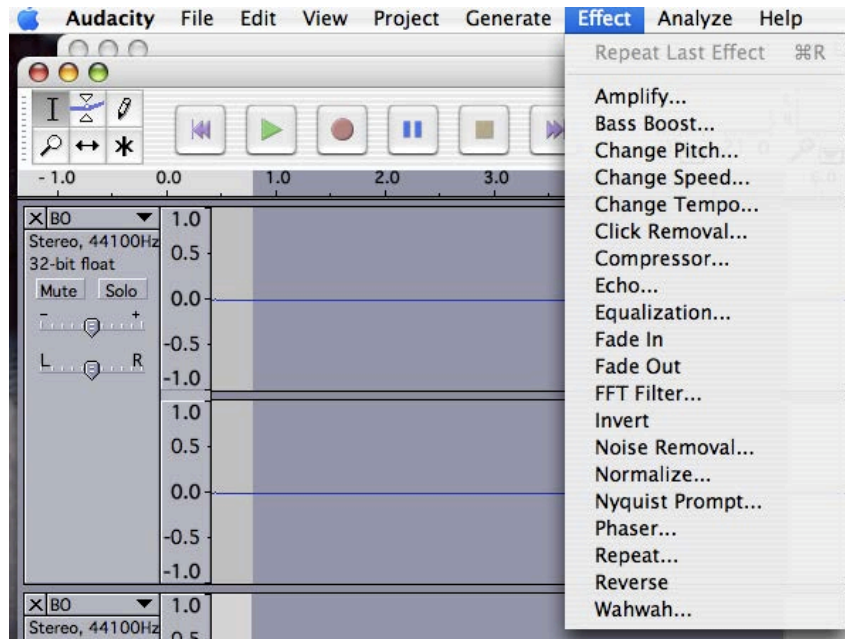
Being creative with material (mess around, try out, manipulate)

You can change (=manipulate) the sound of your file. Go to the top menu Effects and try out whatever you like. You need to select the sound first using the select tool before you can apply an effect to it. Remember to export sounds you like as .wav file and to put it into your sound library. (Remember also, that it is very helpful to give it a name such as water_ampl.wav, so you know later that you have used your sound called water and have used the amplify effect. This helps you to prevent chaos with your files.)

Sound manipulation is one of the key methods electroacoustic composers use when composing with sound. Sound manipulation does not necessarily mean that you will not be able to recognise the sound afterwards. However it can be the case.

The Effect menu on Audacity offers many different possibilities to manipulate sounds. The easiest option would be to select the sound you'd like to

manipulate and to try it out. Most of the effects offer a preview, so you will be able to listen to the sound before you decide on a final version.



Screenshot Audacity Effects

Audacity - Working with Sounds 5

Combining and arranging different material (composing)

You need to have a rough plan of the material you are going to use. Listen back to the sounds you like most (or think of the sonic environment which you like to create) and choose which will go into your composition. For some people it is easier to put all sounds into the program and then to thin it out by deleting sounds, other people prefer to build up starting with one sound and then adding other sounds to it. It is not necessary to have a lot of material, it is possible to compose a piece that just consists of one sound. Important is that you always listen carefully to all you do. This way you don't only control your action, you also learn what fits together. Listen also to so-called mistakes. Often the unintended actions are more interesting.

Composing beginnings and ends

How to start your composition is a difficult question. There are no rules anymore like there have been 150 years ago. However there are some recommendations, which make life a bit easier. It obviously depends on your sounds and on what is important for your composition. Don't worry if you don't know how to start your composition right away. Many composers compose their beginnings after other parts of the composition are finished. And you can always go back and change if something does not fit any more.

Think of different starts: Would you like to have a quiet start and build up slowly or you would you like to have an abrupt start, where your listener is directly confronted with your sounds? Listen to your sounds and think which one is most suitable for a beginning. You can also try to find the least suitable sound and try to deal with this as a challenge.

This also applies to the ending: Do you want to have a fade out or do you want to have a sudden end?

Structure your piece

It is good to have a structure in your piece. Think about which sounds are sounding well in which order. Will you have a quiet part in the middle? Will you have a very rhythmical part somewhere else? With a structure it is easier to listen to your piece, but the structure also helps you to compose. You could have various types of structures.

Working with dynamics

If your piece has all way through the same volume, this can easily become boring. Think of how you could make it more interesting in making it louder and quieter using the triangle tool.

Changing the volume is one of the basic techniques for creating a sonic environment. If you listen to the world around you not every sound has the same volume. Sounds which are far away usually are quieter than those next to your ear. Listen again to Hildegard Westerkamp's "Kits Beach Soundwalk". At 1'40 she demonstrate how you can "fool" the listener just by changing the

volume.

In general it is to say that some sounds can be more important than others. You can build up towards a special sound by using crescendo (becoming louder) and decrescendo (becoming quieter). (Sound example?)

Using panning

Another function is used to make your piece more interesting. This is called panning. You might have come across this already in the listening section. Panning is a function which lets your sound move in space. If you compose a piece in Audacity, you are very likely to have a stereo composition. In this case you can only move the sound from one loudspeaker to the other. If you are working in other programs and with bigger set-ups it is possible to send the sound through the room as you might know it from Dolby Surround Sound in the cinema.

Audacity - Working with Sounds 6

Polishing your composition (mastering)

Once you are happy with your composition you can start to do the final bits. This is called mastering. It means basically that you polish the piece. Mastering is a very complex process. It really depends on which genre of music you have and for which medium you are mastering. All of the following tips are only very basic and help you to find your first way through mastering your project. If you are interested in more advanced information, visit the Audacity help website.

Mastering consists of different steps. The first thing you need to do is:

Normalizing and Declipping

Clipping is the distortion of a signal which is too loud. So basically if you have recorded a sound with a too high level then you hear distortion on your recording. Sometimes this happens also just for a very short time, so you need to listen carefully to your piece (if possible leave a few hours in between and listen with a "fresh ear" to it). You can watch the meter level (in the middle of the

menu bar) at the same time: if this jumps into the red area, there will be clipping in this section. Then you need to make the sound which is clipping quieter.

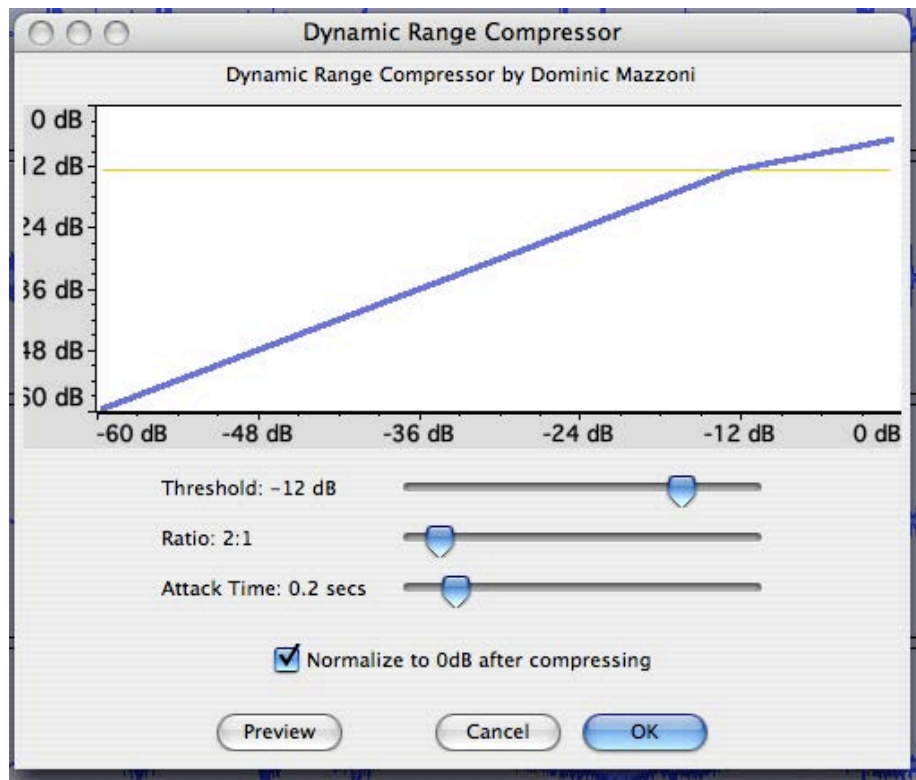
If you choose the effect Normalizing, Audacity searches for the highest peak in the waveform of your piece and makes everything proportional quieter. It does not change waveform as compression will do.

Audacity offers also an effect called "clip removal". This function basically includes what is described above. However, you can try the way outlined above as well.

Once you have normalised and declipped, you can go to the second step:

Compression

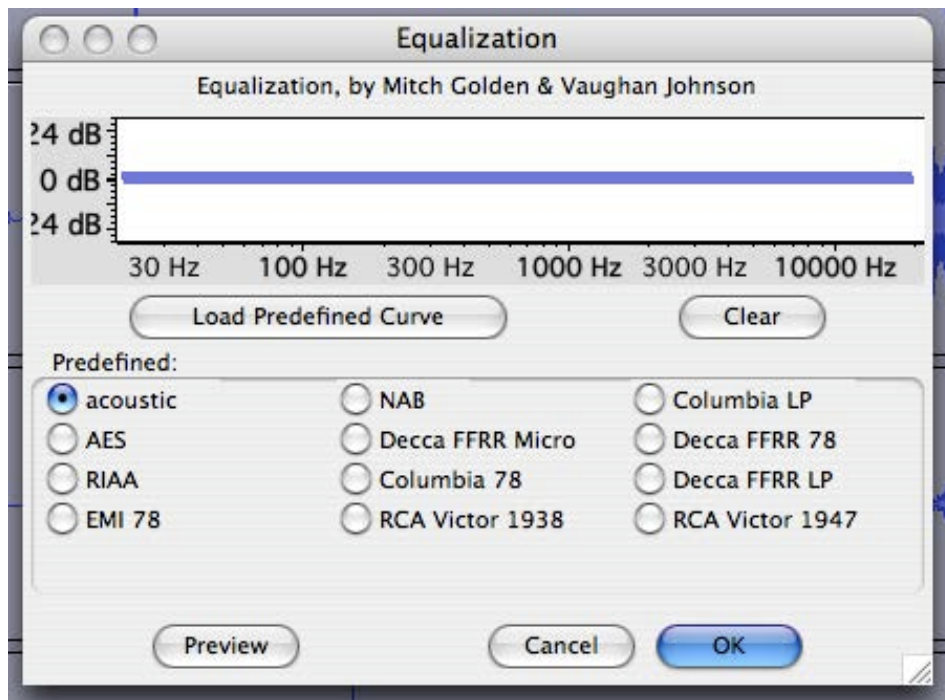
As mentioned before this is a very, very basic description. It is possible to learn years about compression. Basically there are two forms of compression. One is when the entire audio signal (= your sound, your piece...) is compressed into another format (from .wav to .mp3 for example), the other form of compression is called Dynamic Range Compression and can be used to get rid of the last clips in your piece. In very easy words this is a form of controlling the volume of your piece. We have said earlier that clips are parts of your sound where the signal is too high, so the sound is too loud. If you use the effect compression, Audacity searches for these bits and instead of making everything quieter in proportion, it just cuts off those frequencies that are too high and cause the clipping. As a result, the waveform is changed. You find the Compression function in the top menu under Effects -> Compressor. Check at which frequency your piece peaks and according to this choose the values of the threshold.



Audacity Screenshot Dynamic Range Compressor

Equalising

You might know from your home stereo that there is a device called equaliser. With this you can adjust how loud you would like to hear certain frequency bands. You have such a tool also in Audacity and you can use it for manipulating sounds as well as for mastering at the end your piece. Maybe you would like to have at some parts of your composition just a little bit more or less bass or high frequencies. You find the Equalising function in the top menu under Effects -> Equalization. To use the Equaliser for the whole piece, you need first to select all tracks (try the short cut strg + A or Apple + A). If you click now on Equalization there will be a curve coming up looking like this:



Screenshot Audacity Equalization

With your mouse cursor you can adjust the curve or you can load predefined curves. Click on preview first to listen to the change of your piece. If you are happy with it click OK.

Audacity - Working with Sounds 7

Fixing different material (saving, storing, burning)

Once you have mastered your piece it is time to save it properly. You can either export it as .wav file (higher quality) or as mp3 (lower quality). It is recommended that you keep your Audacity session, in case you would like to go back to your piece later and would like to change something.

Classroom Version

Go through the seven units with your class and teach them step-by-step how to use the program. Make sure everyone saves their project, gives it a distinguishable name and that nobody changes the name of one of the two folders the program creates. It will take a lot of time to sort those things out later

on, especially if you plan to copy the projects to another directory.

Learning Object: How to record a sound

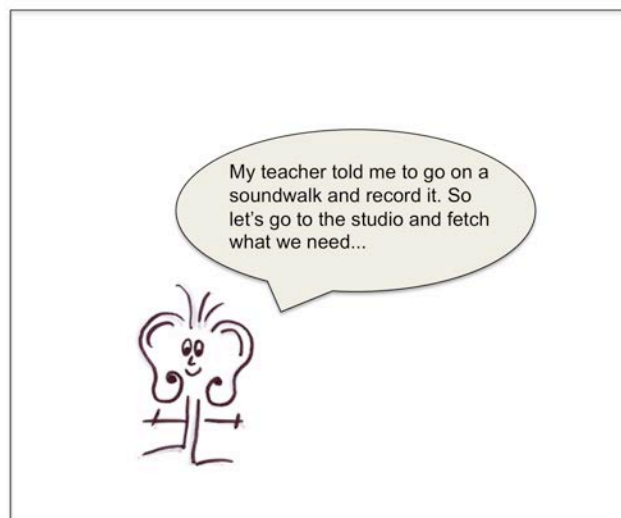
Header: Technology

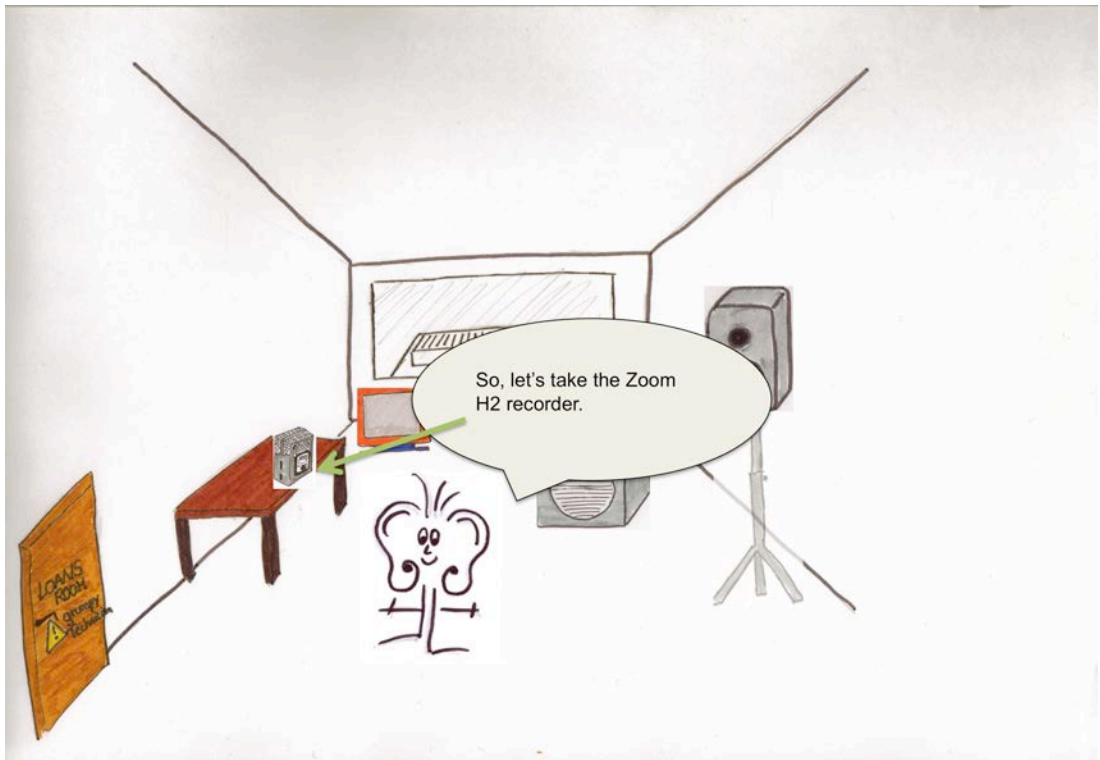
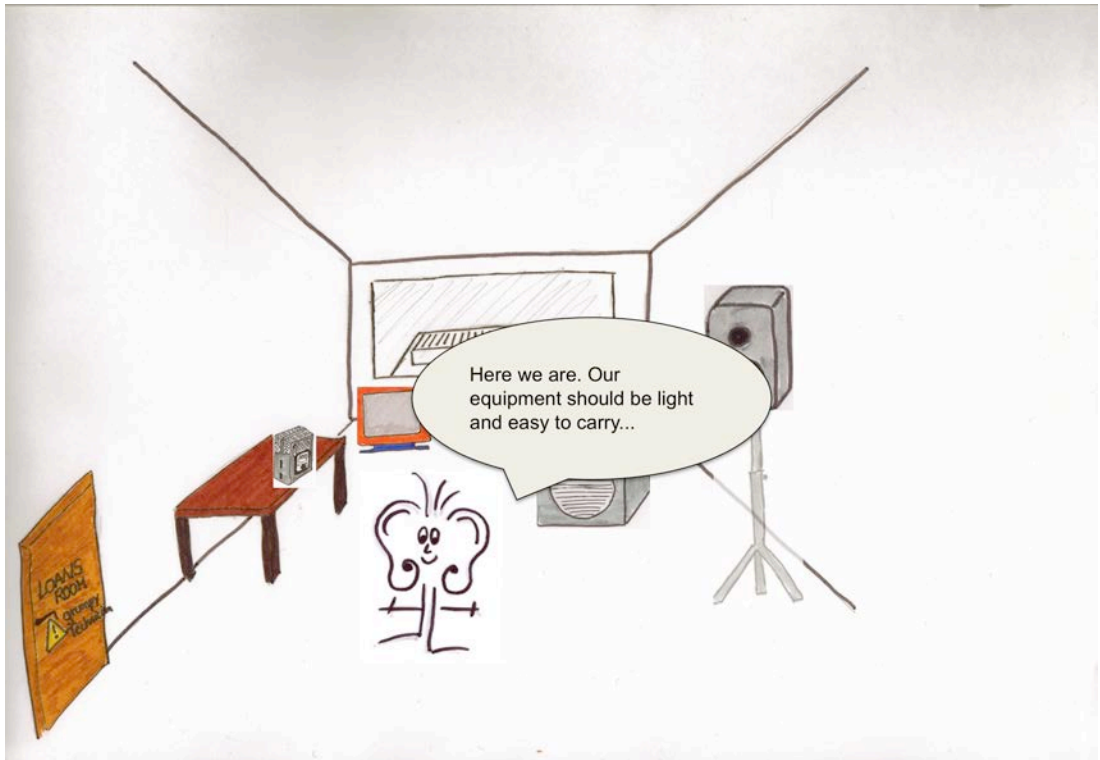
Tutorial: Soundscape

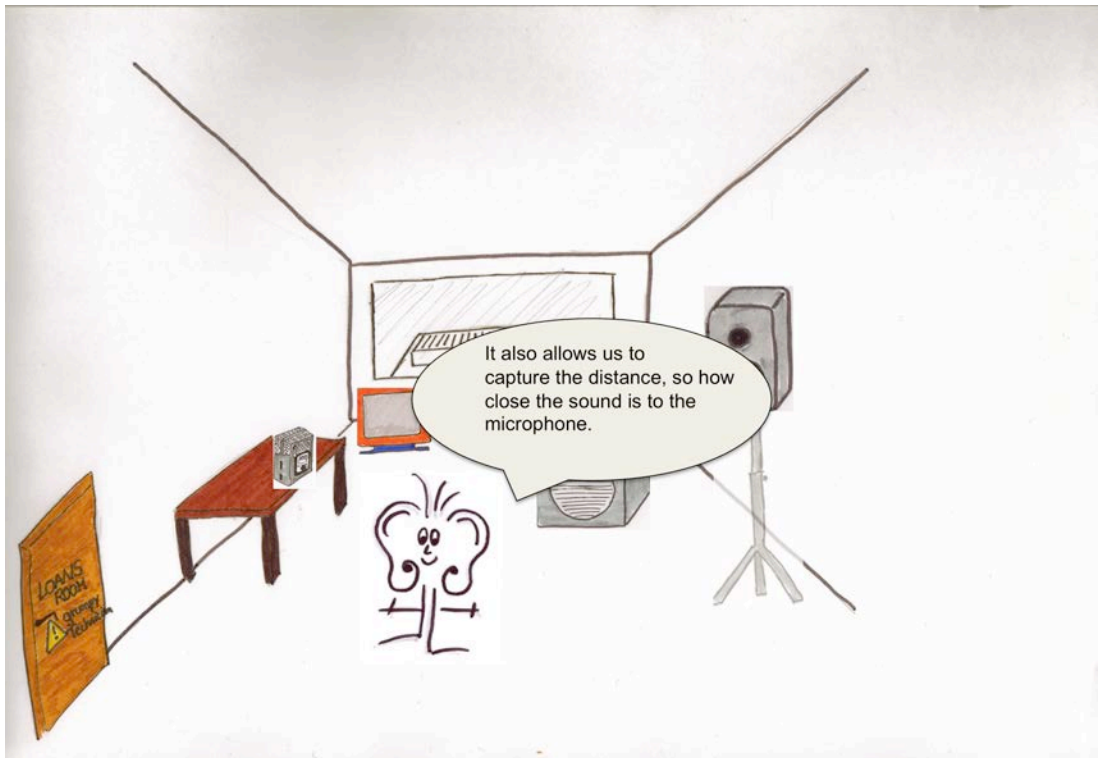
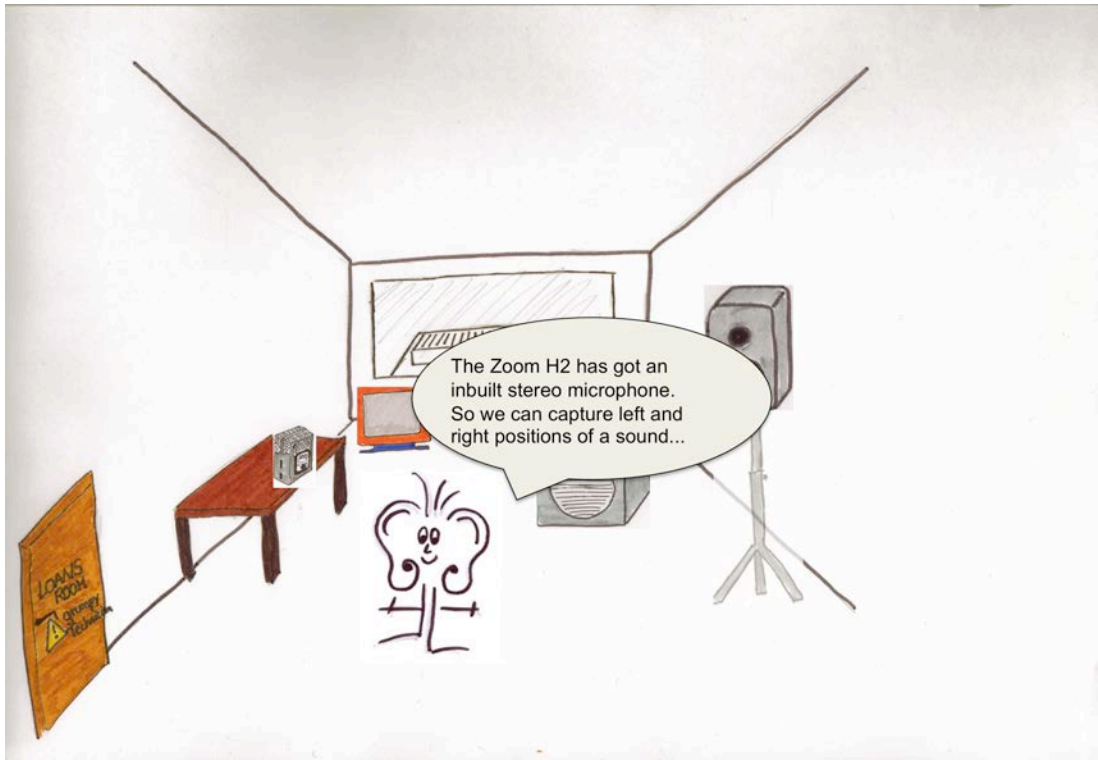
Summary: This Learning Object gives a short summary of how recording works and invites the learner to do their own recordings.

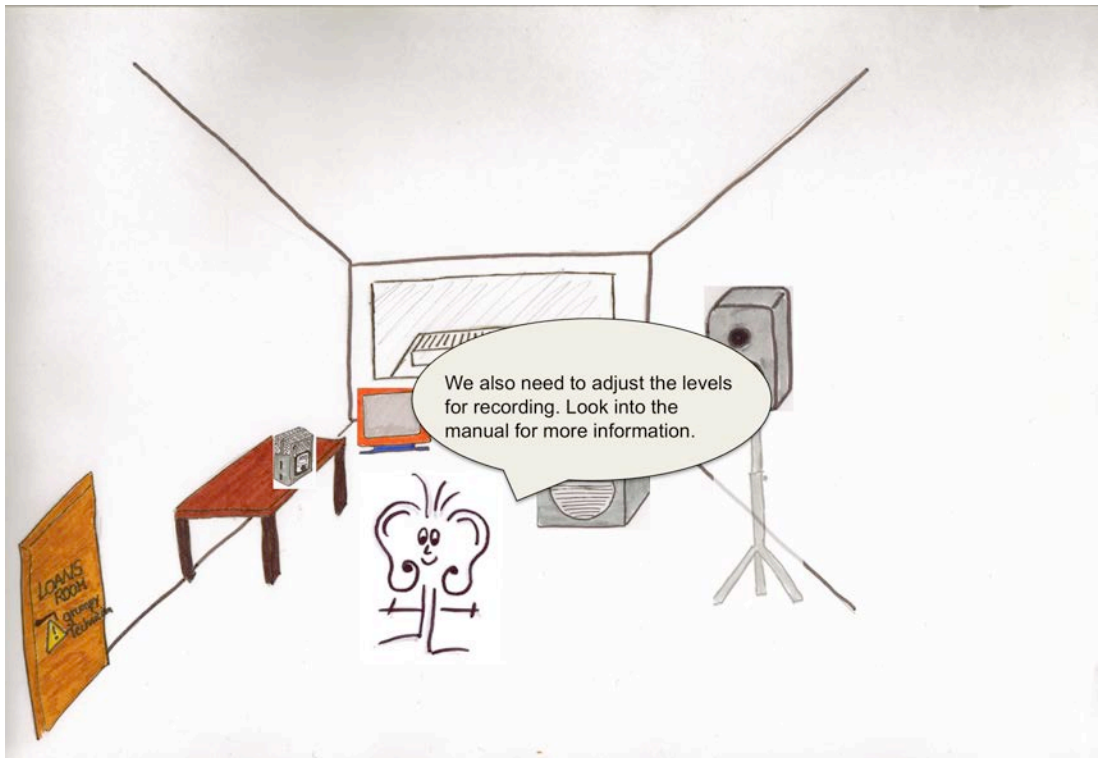
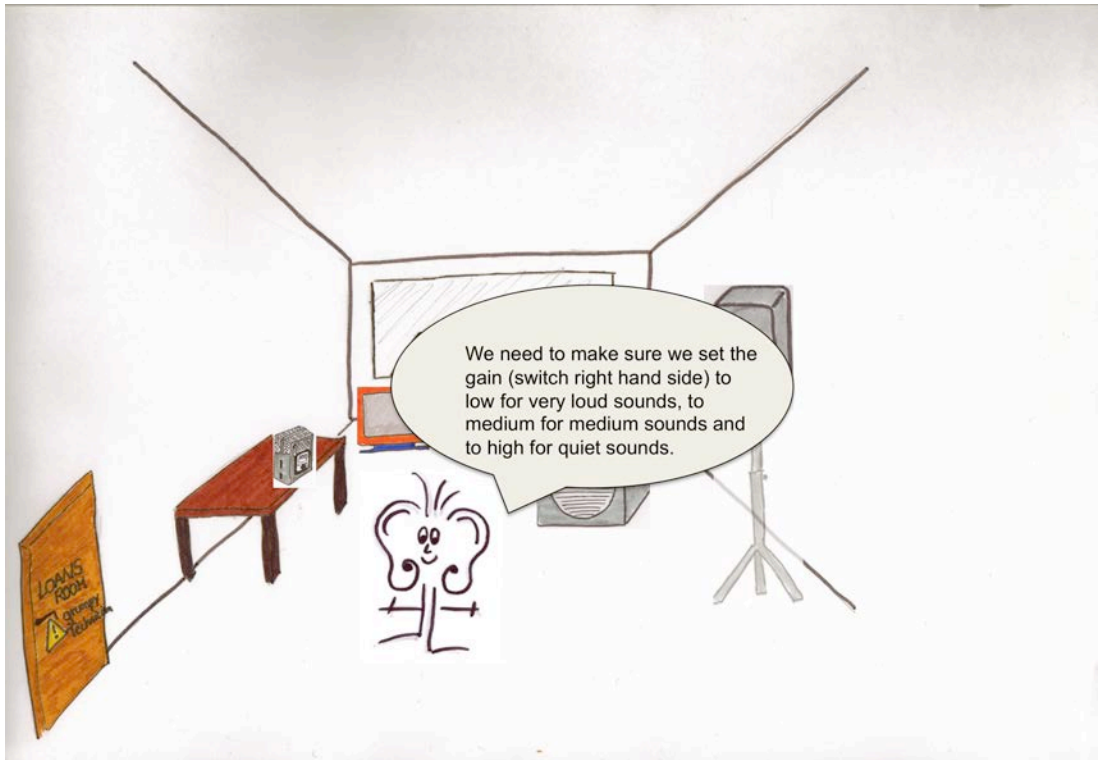
Learning Outcomes: The students will know the following devices: Zoom H2 and a stereo microphone.

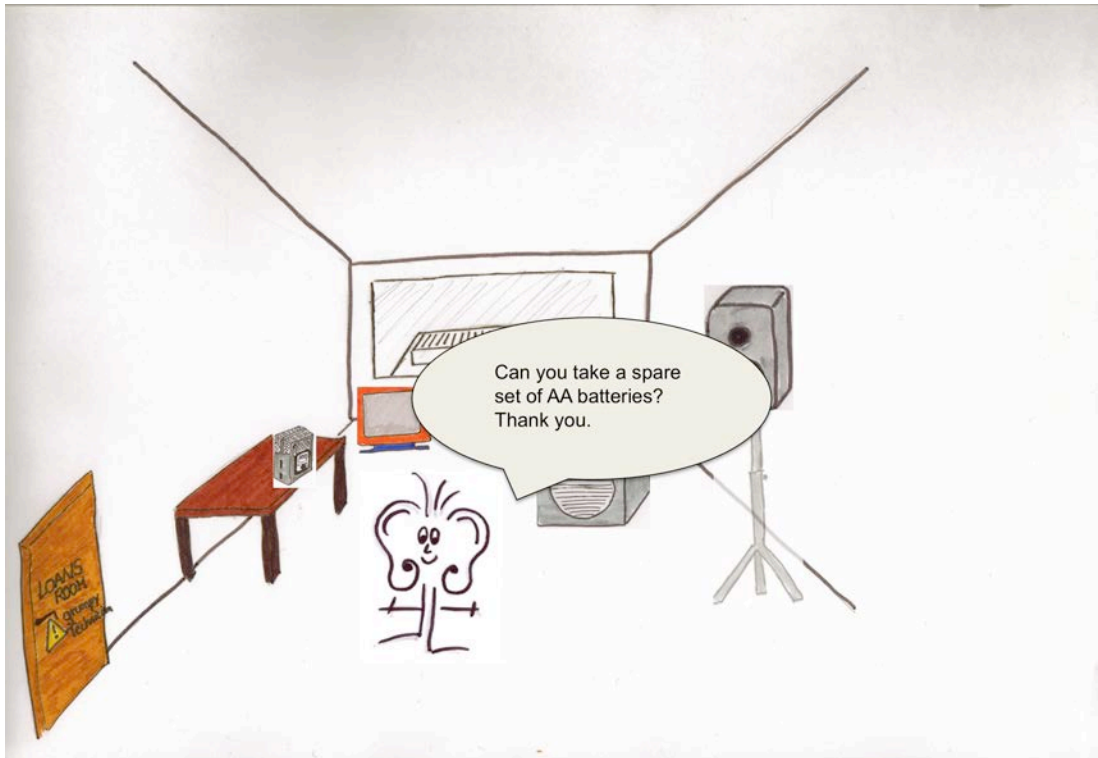
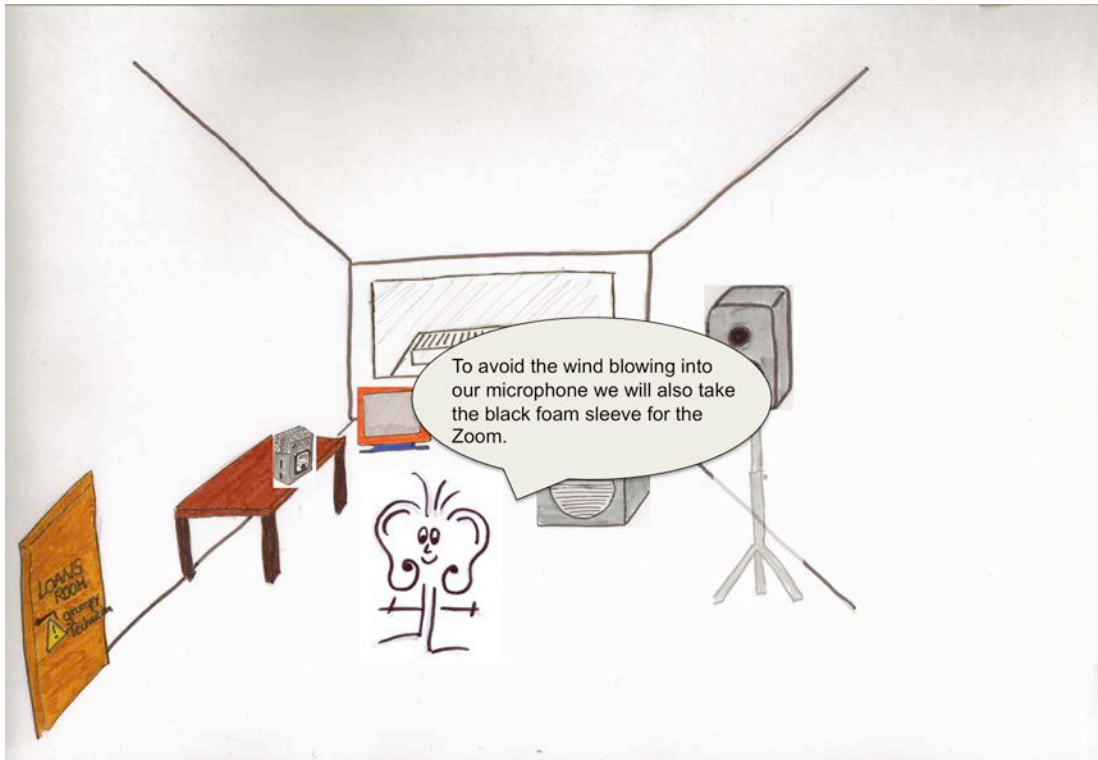
Website Version

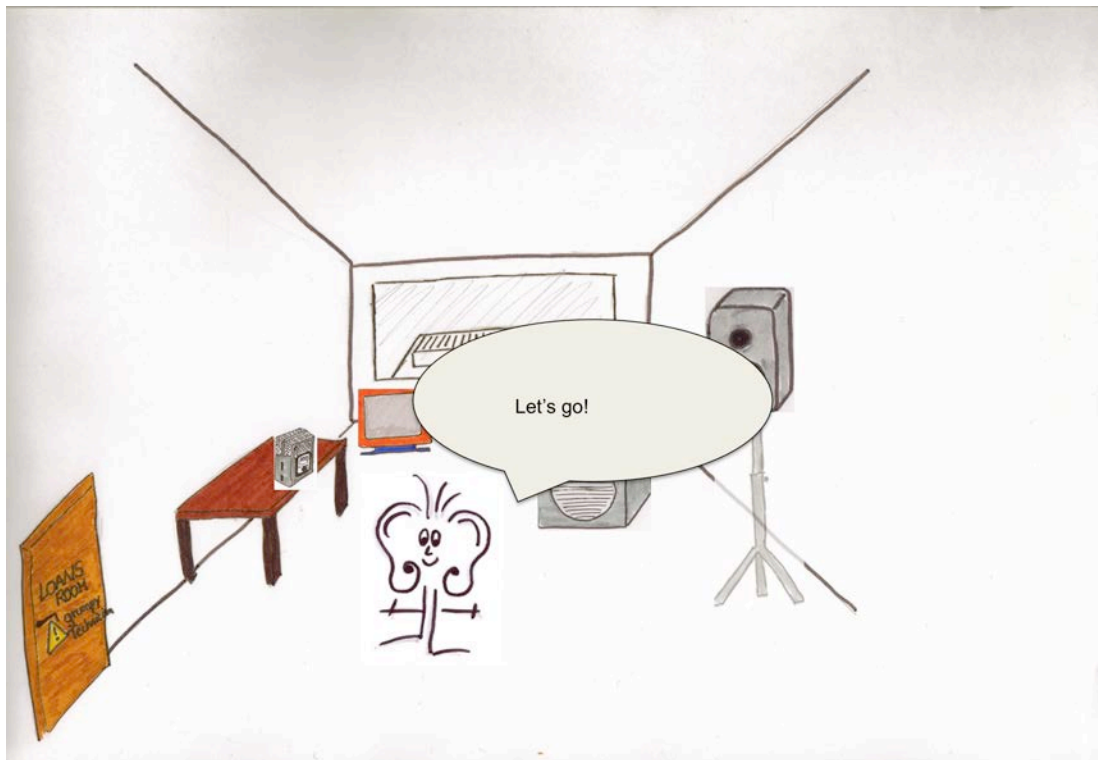












Classroom Version

If you like to explain recording yourself, it might be best to get hold of a handheld recording device. The website names the Zoom H2 there are also other devices by Tascam or Sony. All of those devices are easily understood. Important is that you set your recording level so you avoid peaks in the recording. This happens when the level is too high, which means that the device receives too much sound. Check the manual of your device to see how the recording levels are set.

The devices record the sounds onto SD cards, so it is possible to transfer the sounds to the computer very quickly. You will need a card reader for that or you connect the device via USB to your computer. If you have transferred pictures from your phone or a camera to your computer before, the procedure is the same.

Although this sounds rather obvious, make sure that you keep a master copy of all sounds. Nothing is more sad for a class than to lose the sounds they just recorded.

Learning Object: New Instruments

Header: Technology

Tutorial: No tutorial

Summary: This Learning Object functions rather like a library than being part of a tutorial. It offers a very short overview of important inventions of new musical instruments throughout the last century and provides links to Wikipedia articles which will give more information.

Learning Outcomes: After completion the learners know that the electroacoustic music scene not only uses computers to create music. They will be able to recall the instruments introduced on the website and will be able to remember some background information.

Website Version

Many new instruments have been developed in the last decade. If you are interested in this, please find a list of a selection of Wikipedia Articles introducing new instruments.

Telharmonium

The Telharmonium is the first instrument that separated a performance from its sound source. Performances could be listened to via telephones.

Theremin

The theremin is an instrument that can be played without being touched. Two antennas control volume and frequency (touch) and depending on how the hands are moved in the magnetic field around the antennas, the tone changes. There are many videos of theremin performances on youtube.

Hammond Organ

The Hammond Organ became quickly an influential instrument in pop, jazz and rock music. As it was wide-spread within the popular music scene it influenced the sound of pop music quite extensively.

Electric Guitar

Being able to amplify and to apply effects on the tone of the guitar, widened the sound world of popular music immensely. It can be used in different styles and

has a fixed place in bands nowadays.

Analogue Synthesizer

Synthesizers create sound with the help of analogue circuits. Sounds can be manipulated and acoustically changed through low-pass filters and high-pass filters. Often the instruments have a keyboard and additional switches and controls, so that effects can be applied to a sound. The Moog is probably the most famous analogue synthesizer.

Digital Synthesizer

Aim for the same as analogue synthesizers, but the production of the sound is different: While analogue synthesizers use analogue circuits, digital synthesizers use digital signals to produce a sound.

Further, instruments have been developed that are specific to Noise Music performances. On this website the Crackle Bos and the ghettoSCREAMER have been introduced in more detail in the Noise Music Tutorial.

Classroom Version

Group work: Creating an exhibition on electronic musical instruments.

Story: The director of a museum for musical instruments has decided to put on a new exhibition featuring instruments that have been built within the last 100 years. As the director does not know enough about these instruments, s/he has invited groups of researchers to introduce him/her to some of the important inventions.

The class will be split in groups. Each group presents another instrument to the class. The director of the museum can either be played by the teacher or by the full class (in this case, it would be good to change 'the director' to 'a consortium/a committee', so it would be more realistic).

Important is that the groups can explain the different features of the instrument and they need to give a reason why this instrument was so important that this.

1 Introduction: The class brainstorms different electronic instruments they know (for example e-guitar or synthesizer). Secure the result of the brainstorm in a mind map.

- 2 Explanation of task and splitting into groups.
- 3 Research phase online.
- 4 Planning phase - how will the group present the material
- 5 Preparation phase - planning of the presentation
- 6 Presentation
- 7 To finish off the game, the class chooses a number (depending on how many instruments were presented) of instruments to go in the exhibition.

Learning Object: Noise Music Instrument: Crackle Box

Header: Technology

Tutorial: Noise Music

Summary: This Learning Object introduces the instrument Crackle Box.

Learning Outcomes: After completion the learners have seen and heard a crackle box and understand more about the mechanism of this.

Website Version

Many artists of the noise music scene invent their own instruments. The crackle box is an instrument that has become famous in the last years. In this video the crackle box will be introduced:

VIDEO

It was invented by Michel Waisvisz at STEIM, the STudio for Electro Instrumental Music, in Amsterdam, Netherlands. Today, the crackle box is one of the famous noise music instruments. The box contains a simple circuit and a loudspeaker. To produce a tone, you have to close the circuit. Therefore you need to touch the silver parts of the box with your fingers (or any other conducting material). In that moment electricity can flow through you (no worries, it doesn't hurt, but don't try it out with other things!) because the circuit is closed. You can adjust the tones and the crackling by varying the pressure of your fingers.

Classroom Version

1 See classroom version of New Instruments.

2 A crackle box costs around £50 and can be ordered at STEIM. In case you own a crackle box, you could bring it to school and demonstrate it.

3 A cross-curriculum activity could be planned together with science/physics:
It is possible to demonstrate conductivity as well as basic electrical circuits with the crackle box.

Learning Object: Noise Music Instrument:
ghettoSCREAMER

Header: Technology

Tutorial: Noise Music

Summary: This Learning Object introduces the instrument ghettoSCREAMER.

Learning Outcomes: After completion the learners have seen and heard the ghettoSCREAMER and understand more about the mechanism of this.

Website Version



As you can't buy those instruments in a shop, building is an essential part of the noise music culture. One way of building instruments is called Circuit Bending, which basically means that things which used to be something else (for example children's toys) are turned into musical instruments.

Neal Spowage for example has taken a Ghattoblaster and turned it into an instrument. Here you can watch a video of him performing with this instrument:

VIDEO

Classroom Version

See classroom version of New Instruments.

Tutorial Sound Manipulation

Header: Technology

Summary: This tutorial introduces different aspects of sound manipulation with the aim to show the learners the possibilities of treating sounds. It aims to enhance the learners creativity by presenting the possibility of online live sound manipulation, which will allow the learners to experience the changes in sounds directly.

As this tutorial features heavily on the website and the sound examples, no classroom version will be given.

Learning Outcomes: After completion the learners can list a number of sound manipulation techniques. Learners have listened to and tried out the following:

Basic sound editing

- Cut, copy and paste
- Looping
- Arranging (changing order)
- Basic Effects:
- Tempo change
- Reversing
- Reverb
- Delay
- Transposition
- Filters (band pass and low pass filter)

Each sound has different rhythms, pitch, duration and timbre. These are the musical parameters of a sound. That way, sounds can become musical material and you can compose pieces with it, which sound like this.

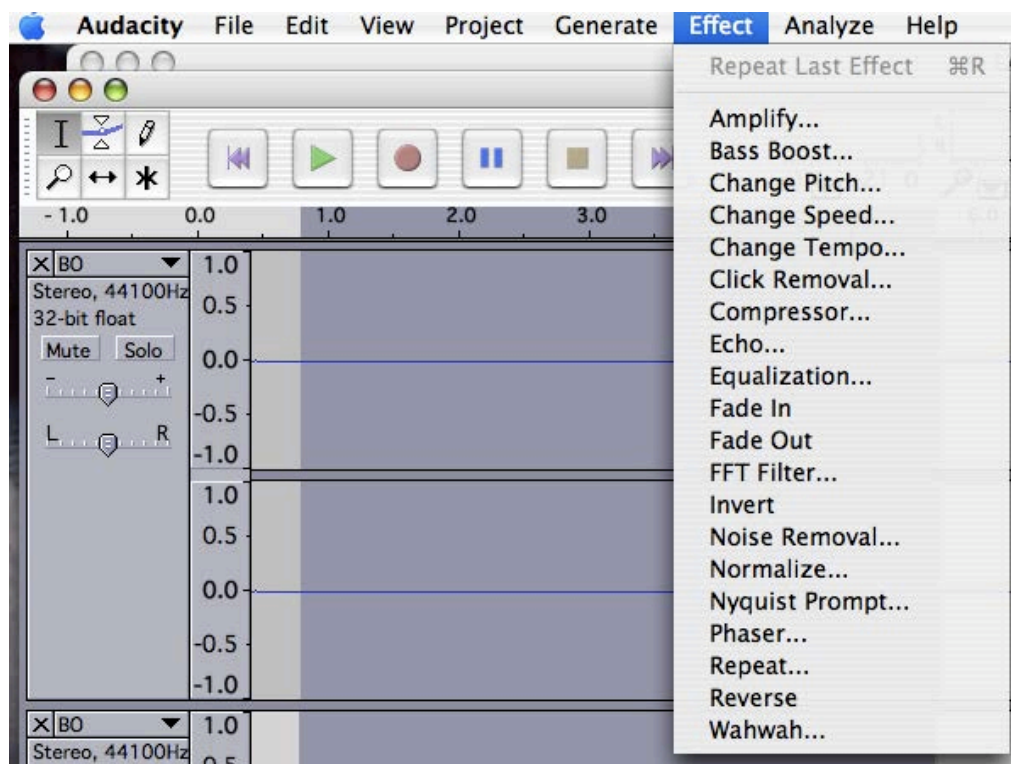
However, sometimes it can gets a bit boring to work just with the sounds in their original form. In this tutorial you will learn what you can do with a sound to make it more interesting.

This is what we will show you:

You will be able to listen online to all effects of the following list. Most of these effects you can try out in Audacity. Some of these manipulation techniques can be tried out on this website, just follow the links or the tutorial navigation on the bottom.

Sound Manipulation Introduction
Listen To Some Effects
Reverb
Delay
Transposition
Filters
Low Pass Filter
Band Pass Filter

This list is not a complete list of all sound manipulation techniques. There are more effects available on Audacity, just try out whatever you like. For an overview see the Screenshot Audacity Effects below. However even this list is not complete. If you want to have a more detailed overview, we can recommend to visit the EARS website.



Sound Manipulation Introduction

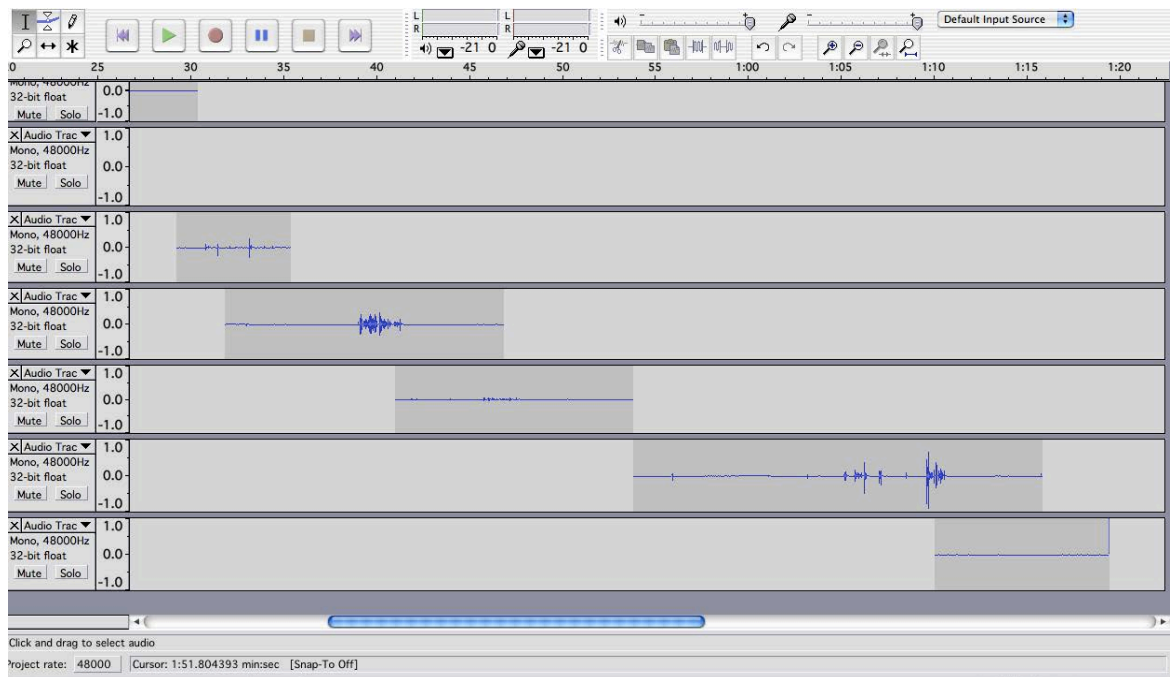
Before we go into more detail in sound manipulation, you need to know the basic steps of it:

Editing and arranging

You can **cut** the sound, so if you've a recorded sound, you don't have to use the whole sound. You can also **copy** it and use the same sound again. If you want to use the sound several time after another without a break in between the repetition, this is called **looping** the sound. You can also **change the order** of sounds with copy and paste. And you can combine these in cutting a sound and changing the order of the sound snippets. And obviously you can also **delete** a sound, if you don't like it.

You can try this out in the section: Composing a Piece - Introduction to Audacity.

Here you can see a screen shot of a project done by groups of year 8 students from Leicester. The sounds were cut from the original recording and pasted into the arrange window. They were also changed in their order and moved in time, so that not all sounds appeared at the same time.



Now it is time to look into some effects.

Learning Object: Listen to Some Effects

Header: Technology

Tutorial: Sound Manipulation

Summary: This Learning Object introduces how some common effects sound.

Learning Outcomes: After completion the learner has listened to the effects (sample slowed down, speeded up, and reverse).

Website Version

Listen to Some Effects

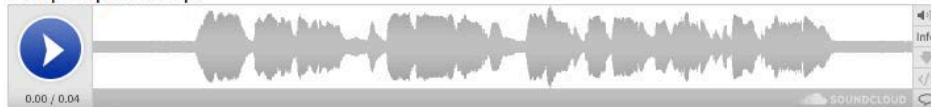
Here you can listen to a sample in its original version:



Sample slowed down:



Sample speeded up:



Sample reverse:



In the following you will be able to try out some sound manipulation techniques yourself.

[<< Sound Manipulation Introduction](#)

[Sound Manipulation Tutorial](#)

[Reverb >>](#)

After this the following Learning Objects offer to try out different Effects online:

Learning Object: Reverberation

(see online)

Learning Object: Delay

(see online)

Learning Object: Transposition

(see online)

Learning Object: Filter

Header: Technology

Tutorial: Electronic Music, Sound Manipulation

Summary: Basic sound manipulation can be done by using filters. This learning object introduces how filtering works.

Learning Outcomes: After completion the learner will know that a sound can be changed by taking away certain parts of the sound. S/he will have heard of different types of filters.

Website Version

Sounds can be manipulated in the same way as a violin tone can be changed. A violinist can play loud or quiet tones, can produce soft and strong sound, can do crescendos (= tone becomes louder) and decrescendos (= tone becomes quieter). The violinist can do that just by changing the bow pressure or speed which causes a different response from the strings.

This can also be called filtering: A certain quality of a sound is filtered out. In some cases we just use our hands (for example by covering a loudspeaker with our hands) in other cases, we need the help of a computer for it. That sounds probably very abstract but is actually quite easy:

Imagine how to make coffee: Because you don't want to have the powder in your cup, you need a filter and filter paper. The paper stops the powder and only the water (or now the coffee) can pass the filter. You can also think of sieving sand. Depending on how large the holes in the sieve are, the more sand can go through. You can do the same with sound: The sand is your sound and depending how the holes of the sieve are structured, more or less of the sand (=sound) can go through. So it is possible to filter out (=delete) some parts of the sound. There are different ways of filtering sounds. One way is to send the sound through a Low Pass Filter. As the name suggest, it let's low frequencies pass. The same works also the other way round: If you want to send a sound through a High Pass Filter, you will keep the high frequencies. If you want a more sophisticated filtering, you can also filter out high and low frequencies, for

which you will need a Band Pass Filter.

Try it out in the following parts of the tutorial.

Classroom Version

In addition to the information given above, let the class try out basic filtering:

Sing a note and close your mouth with your hand. Try to sing into different shapes of both hands and discuss how the sound changes.

Sending sound through filters will change your sound. This way you can emphasize certain qualities of your sounds. You can for example cut off all high frequencies (high-pass filter) or all low frequencies (low-pass filter). How would your sound change then? (To show examples of filtering you can use the learning object of the website on the whiteboard.)

Sending sound through filters will change your sound. This way you can emphasize certain qualities of your sounds. You can for example cut off all high frequencies (high-pass filter) or all low frequencies (low-pass filter). How would your sound change then? (To show examples of filtering you can use the learning object of the website on the whiteboard.)

Header Theory

Summary: The header Theory deals with interesting questions that come along with electroacoustic music. It offers food for thoughts for those learners who like to think. The header focuses on different ways of notating electroacoustic music as well as on aspects of performing electroacoustic music.

Learning outcomes:

After completion learners will know

- Different ways of performing electroacoustic music
- Different approaches to the problem of notating electroacoustic music
- Different ways to collect musical material

Content:

The 'Performance' section introduces background information about different ways of performing music and the 'Notation' section deals with the problem of how to notate music that does not have any notes anymore. The 'Musical Material' section presents different approaches of composers collecting musical material.

- Tutorial Performance
- Tutorial Notation
- Musical Material

Learning Object: Performance Tutorial

Header: Theory

Tutorial: Performance

Summary: This tutorial gives an introduction in different ways of performing electroacoustic music. It aims to give background information, hence there will be no classroom versions for the following learning objects.

Learning Outcomes: After completion the learners know about Improvisation, Live Electronics, Mixed Works, Sound Installations and the difference between real-time and non-real time performances. They further will have watched or listened to examples of the different ways of performing.

Website Version

With the possibility to store music on fixed media (CD, or any kind of data on a computer) and, furthermore, to compose music which can only exist on fixed media and in no other form, also the way of performing music started to change.

If there is music which can only be played from fixed media, there is no need for musicians anymore. That obviously changed the design of a concert. If there is no need for musicians anymore, why should there be someone on stage? This is why many electroacoustic performances only have loudspeakers on stage. For someone who has never been to such a concert this sounds a bit odd, on the other hand we are used to listen to music without seeing musicians, for instance in shops, on CD, on the radio and on the iPod. It is just that we assume to see musicians, when going to a concert.

However, there are much more ways of performing electroacoustic music. There is music with musicians and there is music without musicians. Music with musicians is made on stage (in real-time). The most common forms are Mixed work and any kind of improvisation (for example with live-electronics or with a laptop orchestra). Music without musicians can also be called music on fixed media. For example musique concrète, soundscape music and electronic music

can be classified as music without musicians. There are also mixed forms, for example sound installations can sometimes use musicians and sometimes don't.

In this tutorial you can learn about different ways of performances in the electroacoustic music scene.

- Improvisation
- Improvisation - try it out!
- Live Electronics Performance
- Mixed Works
- Sound Installation
- Real-Time vs Non-Real-Time

Learning Object: Improvisation

Header: Theory

Tutorial: Performance

Summary: This Learning Object introduces different types of improvisation.

Learning Outcomes: After completion the students know that improvisation is music, that is created here and now, that can follow rules or can be completely free.

Website Version

Improvisation

Improvisation means that music is created here and now without a notated score being used (although sometimes some instructions are used). Each performance is unique.

There are different types of improvisation:

- a) with rules
- b) without rules

a) If a group improvises with rules then the members agreed for example about a structure or some codes (“if I play this, we are going to do this”). A good example is Jazz improvisation. Jazz improvisation follows strict rules, so all jazz musicians can play together without much rehearsing. But not only Jazz can be improvised:

The composer Karlheinz Stockhausen has written text scores for improvising, which are called “From the seven days”. Short text passages give instructions for improvising. The instructions are for example: “Follow the rhythm of your body. Follow the rhythm of your heart” or to find the same tone, go away from it and find it again. It can be played in small or large groups and with all combination of instruments you can think of.

b) Improvisation without rules is called “free improvisation”. You can find it again in jazz music, called “free jazz”, but also very often in live-electronics performances, for example in the improvisations of Merzbow.
Link to pieces on EARS II which are improvised.

Learning Object: Improvisation - try it out!

Header: Theory

Tutorial: Performance

Summary: This Learning Object invites the learners to try out their own improvisation.

Learning Outcomes: After completion the students have experienced improvisation.

Website Version

Improvisation - try it out!

Try to improvise with a group/alone/in a duo ...

Find instruments or things you can use as instruments and try to explore their sounds. Listen which sounds you like to combine. You don't necessarily need instruments. It's possible to find music in pretty much everything. You could also clap, sing, use body percussion, hum, whistle, scream, whisper, speak, shout, etc.

When you have found sounds you want to use (however they are produced), try to do a short improvisation. Not longer than a minute.

You could try now to give it some structure. For example: loud – quiet – loud.

Now try to vary the rhythms and the sounds.

You could do again a three part improvisation: try to play very rhythmically in the first part, very melodic in the second and again rhythmically in the last part.

Now try to combine everything you've practiced so far: loudly/rhythmically, quietly/melodically, loudly/melodically, quietly/rhythmically.

Try out the different parts and put them together as you think it might work best. There is no right or wrong.

Listen, listen, listen!

Listen to everything, what is going on. Which sound was interesting? Is there anyone playing a solo? Are you too loud? Or too quiet? What does your neighbour play, what the person opposite of you? To train your listening you can try to play with closed eyes or while turning your backs to each other.

Learning Object: Live Electronics Performance

Header: Theory

Tutorial: Performance

Summary: This Learning Object introduces Live Electronics Performance and offers a listening example.

Learning Outcomes: After completion the students have listened to an example of a performance using Live Electronics in combination with singing. Furthermore, they will know that noise music features heavily on Live Electronics.

Website Version

When musicians use electronic instruments (such as a synthesizer) or a computer system to make music, this is called live electronics performance. In the following audio example, you can hear two singers, singing into a microphone which is connected to a computer system. This computer system reacts to certain cues of the voices and then plays sounds back.

In most of the noise music performances live electronics are used. There are also musicians who perform in laptop orchestras. Every musician takes a laptop on stage and either generates sounds or plays prepared samples. In most of the cases laptop orchestra music is improvised.

Learning Object: Mixed Work

Header: Theory

Tutorial: Performance

Summary: This Learning Object introduces the genre Mixed Works, in which traditional musical instruments are combined with generated or real-world sounds.

Learning Outcomes: After completion the students have listened to an example of mixed music.

Website Version

So far all music we've dealt with, was just presented by loudspeakers or had electronic instruments in it. However there are also composers who write electroacoustic music combined with traditional musical instruments. This music is called: mixed work or mixed music.

Audio example for mixed music:

Catalogue de Grenouilles by Andrew Hugill

If you would like to listen to more pieces click [here](#).

Learning Object: Sound Installations

Header: Theory

Tutorial: Performance

Summary: This Learning Object introduces different types of sound installations and gives examples for them.

Learning Outcomes: After completion the learners are aware of different types of sound installations. They will have seen Score for a Hole in the Ground by Jem Finer as well as other examples for sound installations.

Website Version

Some artists don't "only" compose music, but also design something around the music to present it differently. This is called sound installation. It's a bit similar to a sculpture – just with sound. Some installations can be rebuilt everywhere, others are made for one specific place and deal with for example the history or certain sounds of this place. This is called a site-specific installation.

Some installations are just set up and run while people are watching or listening to them. Other installations are interactive. That means that the audience has to do something to get the sound started or change. This could be simply walking through the room or pressing some buttons. In that way the visitor of the installation can interact with the installation.

That sounds all a bit difficult? Let me show you an installation:

VIDEO

Score for a Hole in the Ground by Jem Finer

The artist Jem Finer built this installation in the Kings Wood in Kent. A 7m deep hole in the ground was equipped with a horn, similar to a horn you might know from a Gramophone. When water falls into the hole, which happens every time it is raining as the installation is outside, the horn amplifies the sound. More information about this, pictures and listening examples you can find [here](#).

This installation is a very long lasting installation. It is build from concrete and steel. Jem Finer has also created another installation, called longplayer, which shall play for 1000 years. Why do you think, composers create artworks that last so long?

More examples for installations can be found [here](#):

Annelie Nederberg: The Wound is Where the Light Enters You.

James Kemp: Music for Metal and Water

Robin Foster: xmtr4 (1.0)

Learning Object: Sound Installation

Header: Theory

Tutorial: Performance

Summary: This Learning Object introduces the difference between real-time and non-real-time performances.

Learning Outcomes: After completion the learners are can distinguish between real-time and non-real-time performances.

Real-time vs. Non-real-time

The big difference between all these kinds of performances how the music is made: in “real-time” or in “non-real-time”. Real-time means that something is produced “here and now”. So if for example a group improvises on stage, they are making music in real time. If a fixed-media piece is played, this is called non-real-time, because the process of making the music has taken place before the performance.

Which of these types of performances is a real-time performance and which isn't?

- a) Performance of a soundscape piece.
- b) Performance of a live-electronics improvisation.
- c) Performance of mixed music.

Learning Object: Notation

Header: Theory

Tutorial: Notation

Summary: This Learning Object introduces the problems which occur due to the fact that there is no standard notation of electroacoustic music.

Learning Outcomes: After completion the learners know that there is no standard way of notating electroacoustic music and that this results in different methods for analysing music.

Website Version

Musicologists research about music. Some of them investigate for example which harmonies are important in Edward Elgar's music, or which hymn tunes can be found in cantatas by Bach. The normal way of doing this is to take the score and analyse the music bar by bar.

For electroacoustic music, musicologists had to think of a new way of analysing; Suddenly, there was no score available anymore. However, when Pierre Schaeffer composed the first electroacoustic piece, it was not the first piece of music without a score. In fact, most of today's pop music is not notated, and neither was folk music throughout the centuries.

In trying to find a better method of analysing than just listening to the music (aural analysis), musicologists tried to find other visual representations (i.e. pictures of the music), which will be introduced in the next chapter of this tutorial. So now you know of music, which is not notated. What is the purpose of notation? Do you think it is necessary? In the following sections, two common approaches of notating electroacoustic music will be shown.

Classroom Version

See website version

Learning Object: Graphic Score

Header: Theory

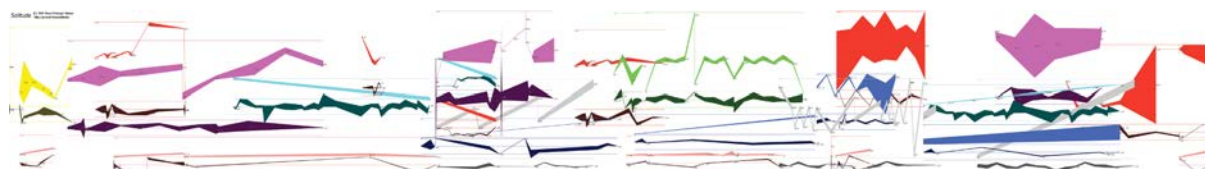
Tutorial: Notation

Summary: This Learning Object introduces the learners to graphic scores.

Learning Outcomes: After completion the learners have seen a graphic score and listened to the music of it. They further will have created a graphic score and discussed the differences between different versions of scores for the same piece.

Website Version

Graphic score



This is a score. It looks a bit different to what you might expect a score to look like. As you can't see any musical notes, this is called a graphic score. Graphic scores are used in contemporary (and often in electroacoustic) compositions, when sounds are so complex that it is not possible to notate them in traditional ways. In this case this score invites musicians to improvise orientating along the different shapes and textures and setting them to music. The score you can see above is called 'Solitude' by Hans-Christoph Steiner. Each shape on the score represents a sample used in the composition. Listen to it here and try to follow the score at the same time.

Can you hear the different shapes? Can you hear the different samples starting? Do you think this is a good method of writing a score for electroacoustic music? Can you see any advantages or disadvantages with it?

Sound file

Listen to the next piece and try to draw a graphic score for it. It might help to listen to it several times. Think about which sounds are important for the piece and how they relate to each other. How do you draw quiet sections? How do you draw loud sections? When you're finished, compare your graphic score with your classmates' scores. What is similar, what is different? Why did you choose your way? (Please keep in mind that there is no right or wrong way of drawing the score. It's just different or similar to the original.)

Advantages of graphic scores	Disadvantage of graphic scores
<p>They can help you to follow the music while listening.</p> <p>If you speak about a particular piece, they can help if you want to refer to a special section of the piece. Instead of saying "this section after 2 min and 30 seconds" you can say "the sound of the red dots". However, there are people who prefer to refer to the time. They tell you something about the structure of the piece and of the relation of the sounds.</p>	<p>A graphic score does not tell you anything about the actual sound. Note: a traditional score does not do that either. We have to learn how to read it. And, depending on the instrument, we connect different things with the same signs.</p>

Classroom Version

1 Variation of the Website Version

Split the class into four groups. Each group will receive a piece. Each student in each group will have to create a graphic score to the piece. When finished the scores are put on the walls and the class has to guess which graphic score belongs to which piece.

2 Perform Cathy Berberian's piece 'Stripsody', which is a graphic score that features on comic noises ('strip' as in comic strip). You could split the piece into different parts and give either each part to different groups or the same part to different groups. In the first case, a full performance could be created, in the second the differences of the interpretations could be looked at.

Learning Object: Sonogram

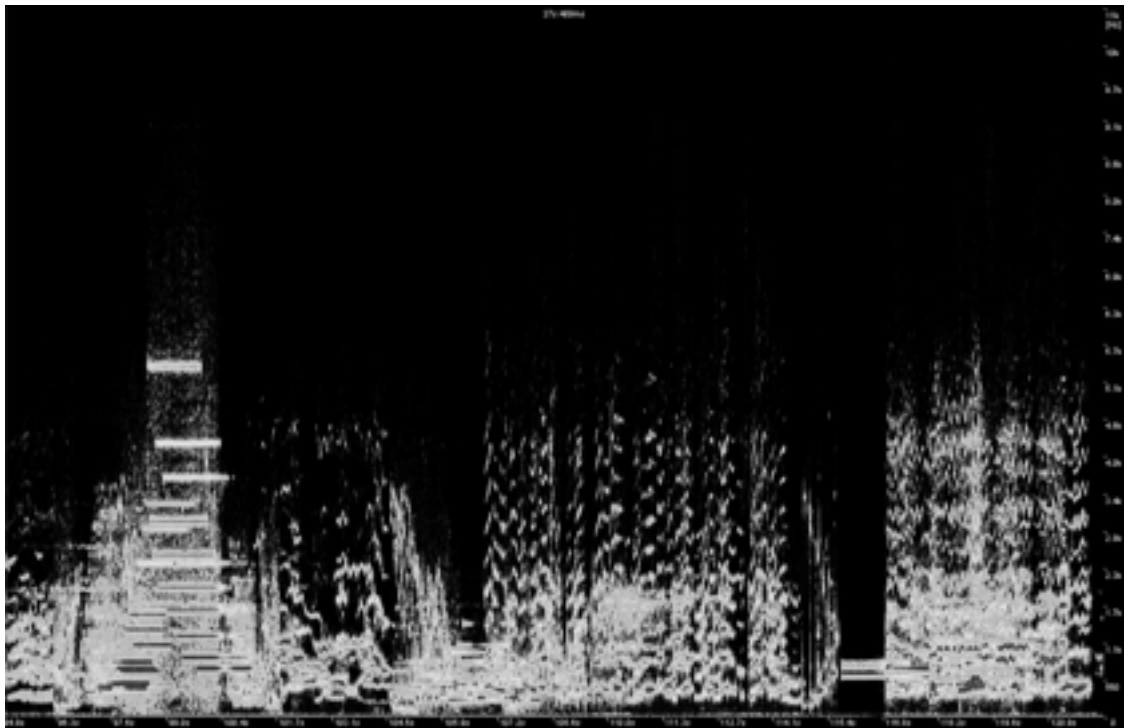
Header: Theory

Tutorial: Notation

Summary: This Learning Object introduces the learners to sonograms.

Learning Outcomes: After completion the learners have seen a sonogram of Karlheinz Stockhausen's piece 'Gesang der Jünglinge' and of Aphex Twin's piece 'Strange Formula'.

Website Version



This is a sonogram. Sonograms are pictures of sound. This sonogram has been taken from Stockhausen's piece 'Gesang der Jünglinge'. Sonograms are made with the help of computer programs. These programs analyse how a sound changes over time. Depending on the method of analysis, it can show the frequency (how high or low the sound is) and also how the music is 'shaped'. This means you can see if there are a lot of sounds or if there is a quiet section or silence.

If you think of graphic scores again, can you describe the differences between graphic scores and sonograms?

Aphex Twin, who makes experimental pop music, scanned a picture of a face into a program, which converted the structure of the face into a sonogram. It looked like this:



The piece is called 'Strange Formula' and can be found on the CD 'Windowlicker' by Aphex Twin. Unfortunately, we cannot give you an audio example. However, this topic has been discussed widely on the Internet. Also you can buy the piece on CD.

Classroom Version

Discuss the differences between sonograms and graphic scores. Can you think of differences and similarities. What do they show, what can they not map?

Learning Object: Graphic Score and Sonogram - Comparison

Header: Theory

Tutorial: Notation

Summary: This Learning Object recaps the differences of Graphic Scores and Sonograms.

Learning Outcomes: After completion the learners have an overview of the differences of graphic scores and sonograms and can distinguish between them.

Website Version

Just to recap, here are the difference between Graphic Scores and Sonograms listed again:

Graphic score	Sonogram
is a score done by composer or musicologist (human being) shows perception of a person, which is different to the perception of a computer it's possible to perform a graphic score	is not a score produced by computer (machine) shows a mathematical analysis it's not possible to perform a sonogram

Classroom Version

See Learning Object: Sonogram

Learning Object: Musical Material

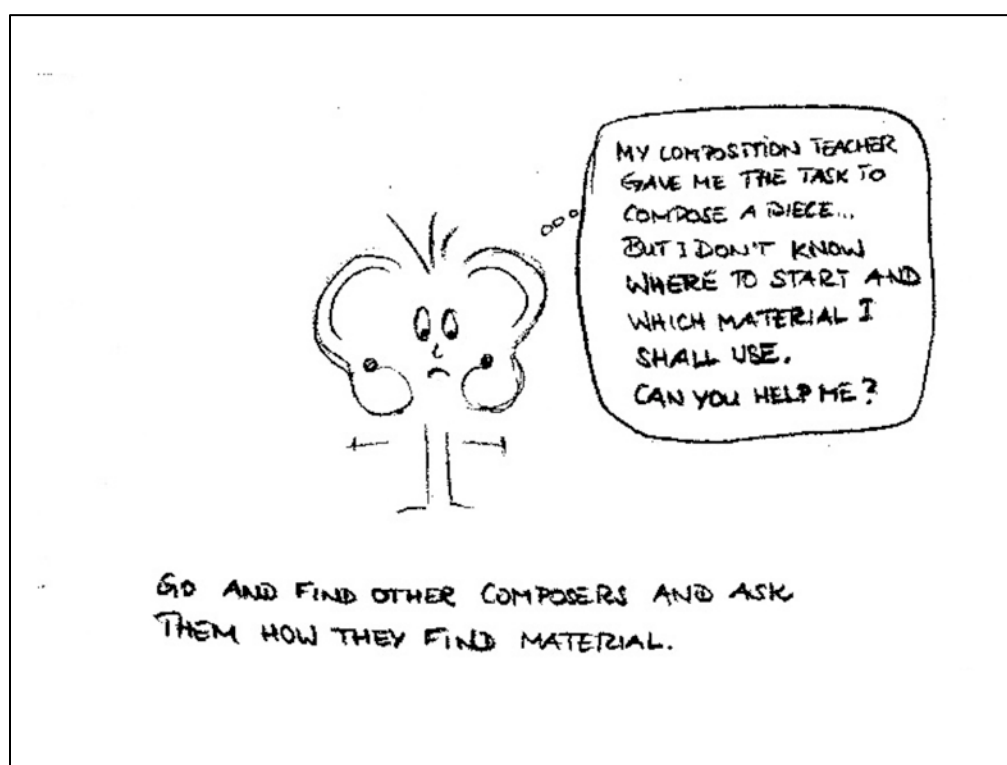
Header: Theory

Tutorial: none

Summary: This learning object presents different ways of collecting musical material in form of a comic: The EARS figure visits composers of different styles to ask them about their methods of collecting musical material.

Learning Outcomes: After completion the learners know the variety of collecting musical material and will feel inspired to collect some sounds themselves.

Website Version





E: HELLO, WHAT ARE YOU DOING THERE?

C: I'M COLLECTING SOUND. I'M RECORDING BIRDS AND TREES AND THIS BUTTERFLY, BUT IT ALWAYS FLIES AWAY...

E: AND WHAT FOR?

C: I'M A COMPOSER AND WANT TO HAVE A HUGE SOUND LIBRARY TO HAVE ALWAYS ENOUGH SOUNDS TO COMPOSE WITH. I JUST NEED TO LISTEN TO THE FILES ON MY COMPUTER THEN.

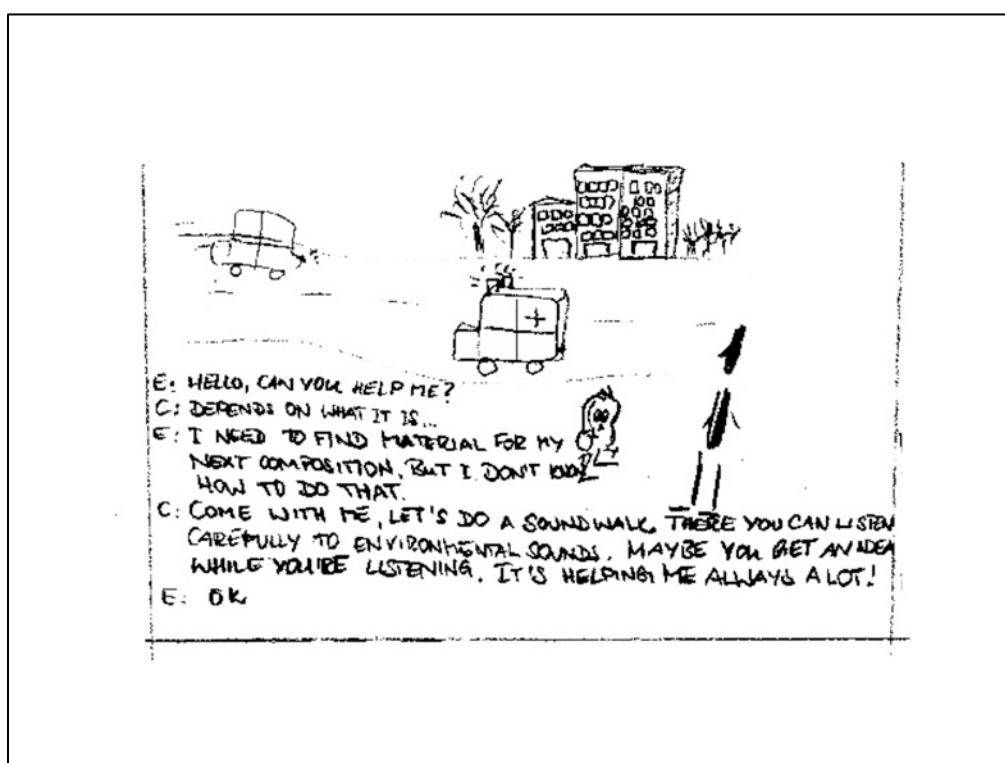
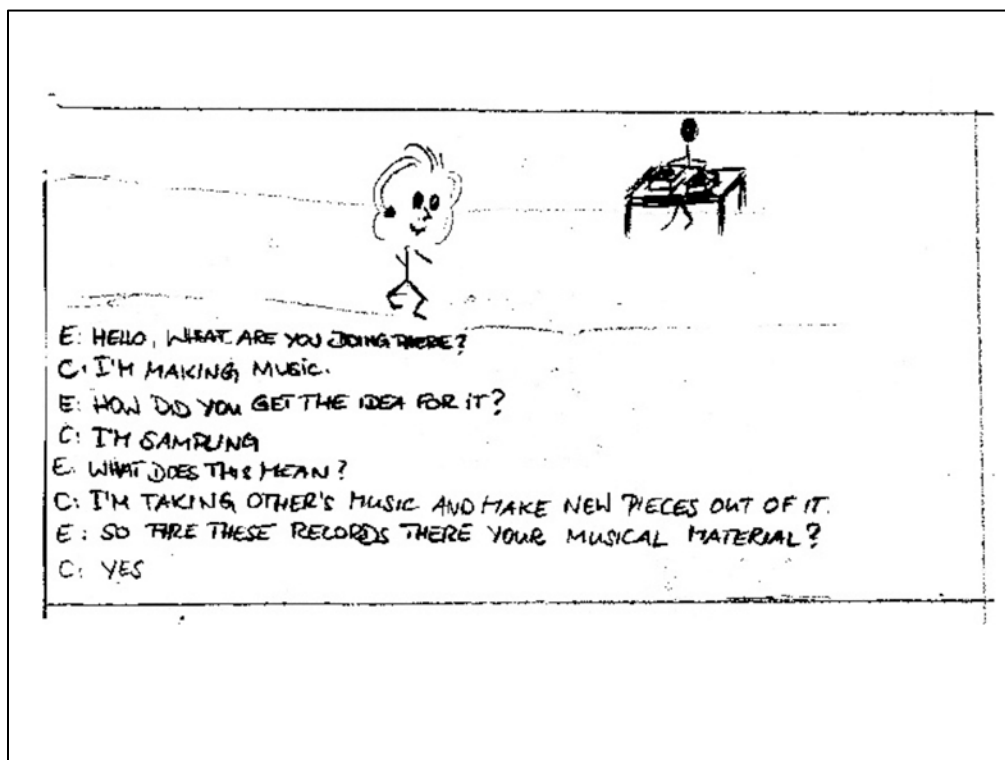


E: HELLO, WHAT ARE YOU DOING THERE?

C: SHH, I'M LISTENING TO MUSIC.

E: WHAT FOR?

C: I'M A COMPOSER AND IF YOU WANT TO BECOME A REALLY GOOD COMPOSER YOU NEED TO LISTEN TO AS MUCH MUSIC AS POSSIBLE. THAT IS HOW I GET NEW IDEAS.



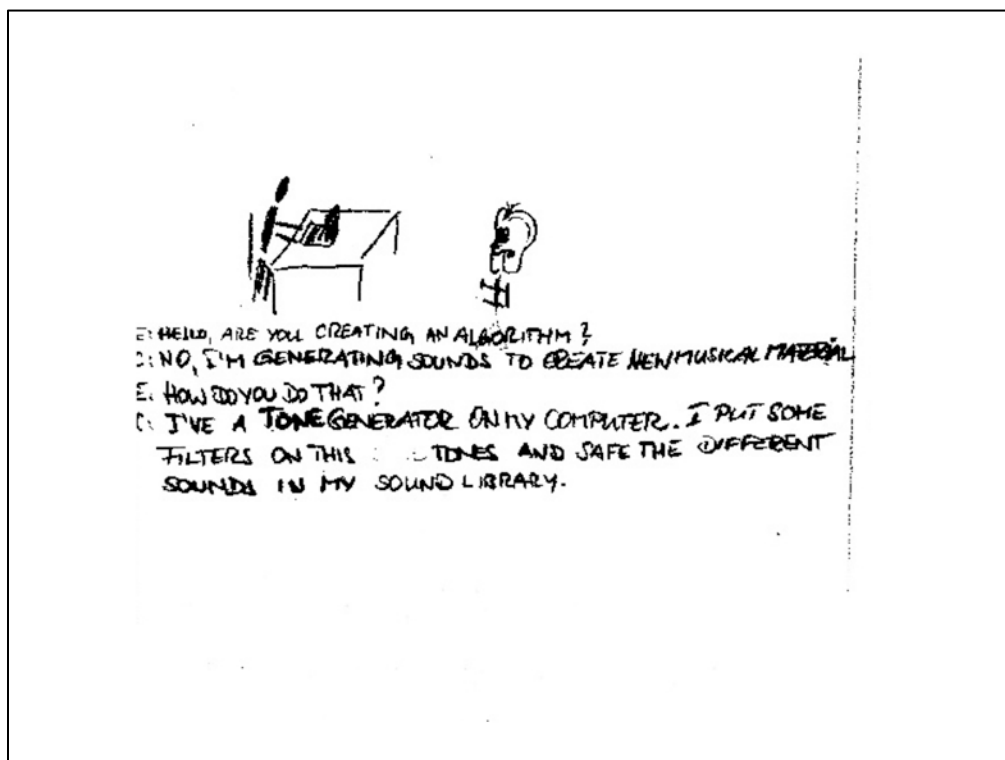


E: HELLO, WHAT ARE YOU DOING THERE? THAT SOUNDS VERY COOL.
M: WE IMPROVISE
E: WHY?
M: BECAUSE WE LIKE MAKING MUSIC WITHOUT THINKING TOO LONG ABOUT IT, AND WHERE YOU HAVE TO LISTEN AND TO KNOW EACH OTHER TO PLAY WELL TOGETHER.
E: DO YOU THINK THIS COULD HELP ME TO GET NEW IDEAS FOR A PIECE? M: DEFINITELY!



E: HELLO, WHAT ARE YOU DOING THERE?
C: I'M PROGRAMMING AN ALGORITHM.
E: AN... WHAT?
C: AN ALGORITHM, THAT IS SOMETHING LIKE A SYSTEM. YOU GIVE ONE INPUT AND THE OUTPUT IS MUSIC. IT IS A BIT LIKE A MARBLE RUN; YOU PUT IN A MARBLE AND DEPENDING ON HOW YOU HAVE BUILT THE MARBLE RUN YOU WILL GET DIFFERENT SOUNDS, YOU JUST CAN'T SEE THE MARBLE RUN, AS THIS IS A PIECE OF SOFTWARE ON MY COMPUTER.
E: DO YOU PRODUCE YOUR SOUNDS THAT WAY?
C: YES, FOR ME THIS IS A GOOD WAY TO FIND NEW MATERIAL.

17



- WHAT ARE THE WAYS OF FINDING MUSICAL MATERIAL WHICH WERE MENTIONED IN THIS
- A) IMPROVISATION
 - B) GENERATING SOUNDS
 - C) GOING FOR SOUNDWALKS
 - D) RECORDING SOUNDS
 - E) LISTENING TO OTHER PEOPLE'S MUSIC
 - F) PROGRAMMING AN ALGORITHM
 - G) SAMPLING
 - H) ...

Classroom Version

Read comic with class.

LISTEN

This header contains tasks related to listening. The study carried out with excerpt of this curriculum has confirmed that listening is the key skill to enhance appreciation of electroacoustic music.¹ Therefore a number of listening tasks (listening challenge) are presented as well as a listening training.

Learning Object: Listening Challenges

Header: Listen

Summary: The 'listening challenge' learning object present practical listening exercises that can be combined with learning objects of the whole website.

Learning Outcomes: After completion the learners are more aware of their own listening and their own sonic environment.

Website Version

Here you can find a number of listening challenges. You can do them whenever you like, however it would be recommended to do one after the other, preferably one per day.

Listening Challenge 1

Sit still and listen to the sounds around you. Listen to the sound with the highest pitch and to the sounds with the lowest.

Listening Challenge 2

Each room has its own characteristic sound. When you go through a door today, listen to the change of the sonic environment.

Listening Challenge 3

Can you imagine the sound of a car passing by in detail? Go to a Street. Compare.

¹ See Wolf, M. (2013) The Appreciation of Electroacoustic Music – An Empirical Study with Inexperienced Listeners. PhD thesis. De Montfort University Leicester.

Listening Challenge 4

Take 30sec and listen to all sounds around you. Do this now. Do this again tonight.

Listening Challenge 5

Can you remember yesterday's sounds? What was the difference between morning and evening listening?

Listening Challenge 6

Have you noticed how different your sonic environment sounds depending on the weather?

Listening Challenge 7

Shut your ears for 30 sec. Then listen for all sounds around you for another 30 sec. What did you hear?

Listening Challenge 8

Take 60sec: What is your favourite sound? Imagine it in all detail. Share your thoughts if possible.

Listening Challenge 9

Take 60sec and listen to all sounds around you. Can you hear different rhythms? Share your thoughts if possible.

Listening Challenge 10

Sit still and listen to all sounds around you. Do you hear different sounds as you would in the morning? Share your thoughts if possible.

Listening Challenge 11

Wherever you are - can you hear a bird sing right now?

Listening Challenge 12

Pick three sounding objects around you. Listen to it for 20sec each. What happens to the other objects when you focus on one?

Listening Challenge 13

Which are the sound that are specific for the place where you are right now? Listen and share if possible.

Listening Challenge 14

My sounds of the week were rain, wind, singing voices and the clicking of my computer keyboard. What were yours?

Listening Challenge 15

Which sounds are specific for your city?

Listening Challenge 16

Thinking again about the sounds of your city: which are different, which are similar to the sounds of another country?

Listening Challenges - Final

You have completed all listening challenges. Well done!
Can you think of your own listening challenges?

Classroom Version

There are different possibilities how this learning object can be integrated in the classroom teaching. The teacher can be creative with the use of it, there is no fixed order (except for a few which are building up on each other).

1 Start every lesson with a listening task. It would be good if listening becomes daily routine, the advantage will also be that the learners will settle down at the beginning of the lesson and will start the lesson quietly.

2 Write the listening exercises on postcards and give them to the learners in a closed envelope. They are only allowed to open it at home. You could also put something nice in there, for example a sticker which they are allowed to put on in the next music lesson (this way you can also see who has done the task).

3 If you use social media, you could tweet the tasks to your learners. A pilot project @listen2sounds has started tweeting some (and other) of the listening tasks to followers. This way the tasks become 'cool', because the learners will be able to access them on their mobile phone. However, it is important to keep in mind those learners who do not have access to Twitter (for whatever reason), so this option could only be additional.

Tutorial: Listening Training

Header: Listen

Summary: This tutorial contains a listening training. It introduces referential and reduced listening with the help of practical exercises and listening trainings.

- Sounds Quiz
- Listen to real-world sounds
- Parameters of a Sound
- Reduced Listening
- Listening Perspectives
- Listening with Four Ears

Learning Object: Sounds Quiz

Header: Listen

Tutorial: Listening Training

Summary: This learning object trains the differentiation between real-world and generated sounds.

Learning Outcomes: After completion the learners will be able to distinguish real-world and generated sounds.

Website Version

Sounds Quiz


Real-world sound or generated sound?

Question 1 of 10 ▾ Point Value: 10

real-world sound or generated sound?

real-world sound

generated sound



Score so far: 0 points out of 0

SUBMIT

Classroom Version

Please see:

Learning Object: Difference between real-world and generated sounds.

Learning Object: Listening to real-world sounds

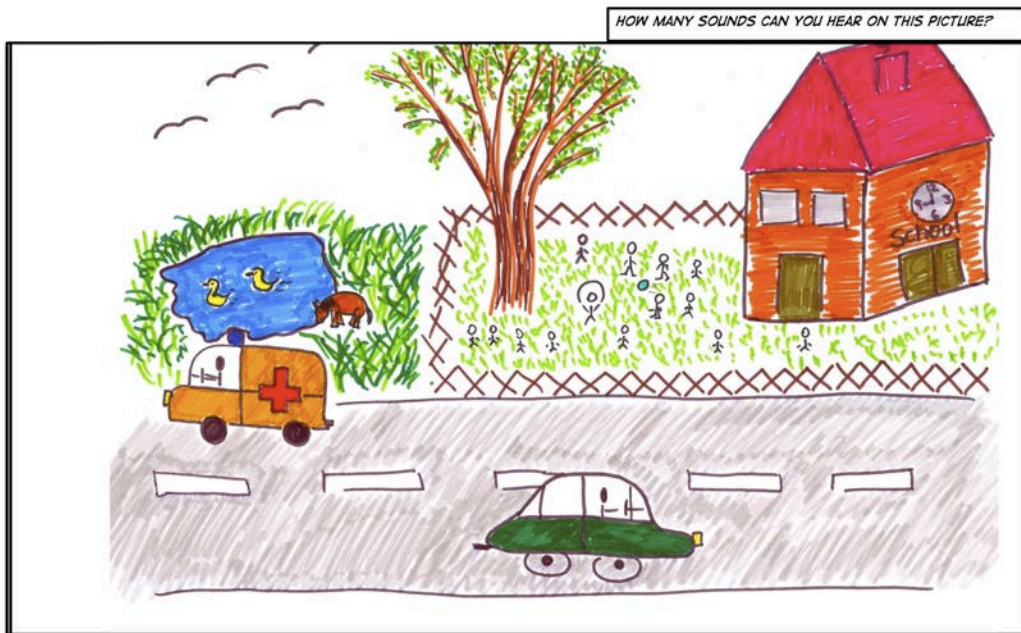
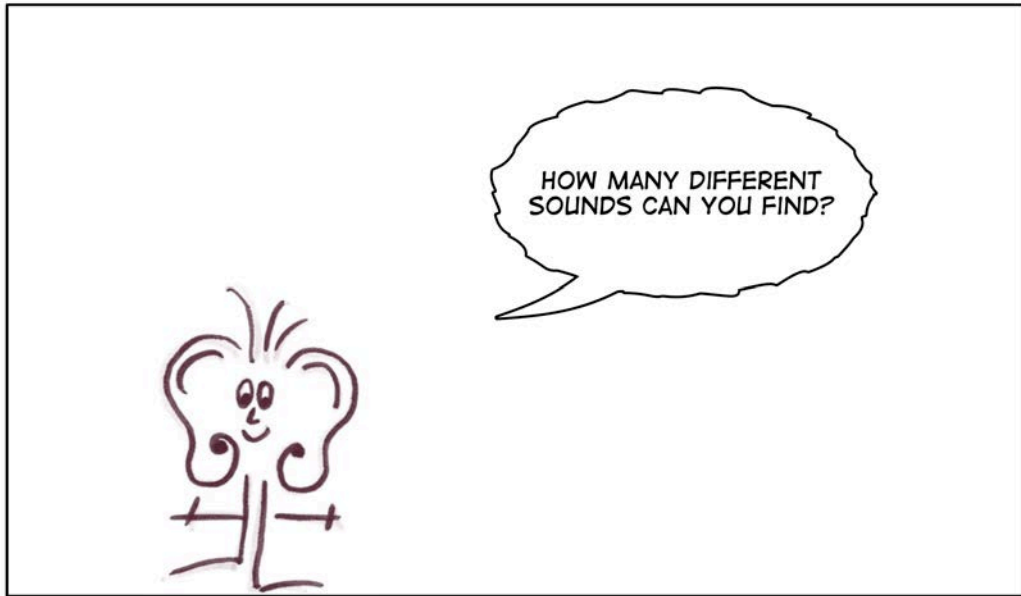
Header: Listen

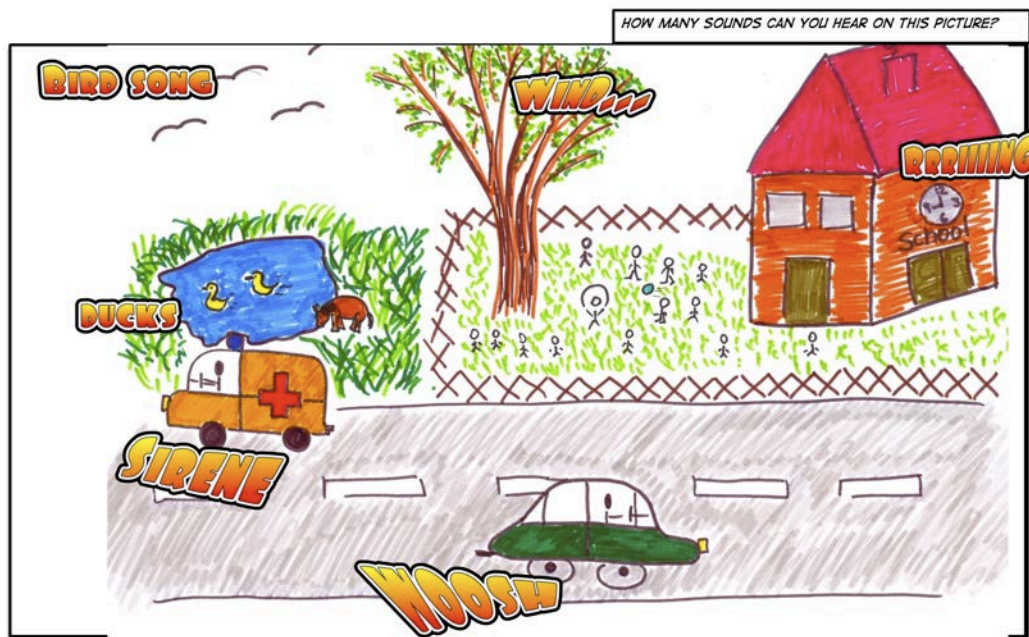
Tutorial: Soundscape, Listening Training

Summary: This learning object makes the learners more aware of their sonic environment by making them aware of daily sounds.

Learning Outcomes: Learners will be more aware of their sonic environment and be able to listen actively to those sounds.

Website Version





These are only selected frames. Please look at the website for more information.

Classroom Version

This topic is covered already by the listening tasks in the listening section as well as the preparation for the sound walk.

Another way to think about real-world sounds would be to look at a selection of photographs and discuss the sounds that are missing in there. This also raises the awareness of sounds as well as evokes creativity.

Learning Object: Parameters of a sound

Header: Listen

Tutorial: Musique Concrète, Listening Training

Summary: Discovering pitch, rhythm, duration and timbre within a sound: When you listen to a sound, what can change? Is it a low or a high sound? Is it long or short? Does it vary or is it constant from start to finish?

Learning Outcomes: After completion, learners will be able to recall the main parameters a sound (pitch, rhythm, duration) and can break down a sound in its parameters.

Website Version

Listen to these two sounds:

Sound 1: Drone

Sound 2: High beeps

Analyse the difference between the sounds:

- 1) What was different regarding the duration of the sounds? (long vs short)
- 2) What was different regarding the pitch of the sounds? (Low vs high)
- 3) What was different regarding the rhythm of the sounds? (No/slow rhythm vs fast rhythm)
- 4) Does any of the sounds have a beat?

Every sound consists of different parameters. As you could hear the two sounds had different pitches, different rhythms and different durations. Listen to the following sounds. Take time and listen out for pitch, rhythm and duration:

After this different sounds are presented with the task to listen to them five times in a row.

Classroom Version

Firstly, to sensitise the learners for different parameters of sounds, play them two sounds:

Sound 1: long and low drone

Sound 2: high pitched short rhythmical beeps

Analyse the difference between the sounds:

- 1) What was different regarding the duration of the sounds? (long vs short)
- 2) What was different regarding the pitch of the sounds? (Low vs high)
- 3) What was different regarding the rhythm of the sounds? (No/slow rhythm vs fast rhythm)

In a second step, play more sounds of your choice (or take the sounds from the website) and analyse them together with the whole class for pitch, rhythm and duration. It might make help if the learners make some notes while analysing.

In the next step, let the learners analyse more sounds by themselves or in small groups. (In case you choose groups think about that each group should have the possibility to listen to their sounds in silence.)

When done, let them cluster their sounds: Which sounds go well together? Why - what was your sorting criterium?

A composition task using the same sounds could follow.

Learning Object: Causal Listening

Header: Listen

Tutorial: Musique Concrète, Listening Training

Summary: This Learning Object explains causal listening by letting the learner listen sounds and thinking about the cause of the sound.

Learning Outcomes: After completion the learner will be more aware of the process of listening.

Website Version

Listening is not the same in every situation. The composer and researcher Michel Chion writes in his book *Audio-Vision* that there are three different modes of listening: Causal Listening, Semantic Listening, and Reduced Listening.

Causal Listening

Causal Listening is the most common form of listening. It simply means that you will analyse a sound for its cause or source. This is something you are used to do everyday: waking up from your alarm clock; reacting to traffic noise on your way to school; knowing who has chatted during the last lesson; or knowing that someone going up the stairs before you can see them.

Listen to the following sound file:

Soundfile with three sounds: horse running, generated sound, children on playground.

What information did you get from the sounds just by listening?

What animal was the first sound? Was it slow or fast?

Did you get any information from the second sound?

What about the third?

Classroom Version

Encourage the class to think about all situations in which they used their ears (listening to teacher, listening out for traffic, listening to music, listening to their friends, using a telephone, ...). Together with the class sort cluster the answers according to their listening situation. Introduce the taxonomy of Causal

Listening, Semantic Listening and Reduced Listening to the class. Does this match the clusters?

Practise the different modes of listening with the sounds of the website. Maybe you can find even more sounds that would be suitable?

Learning Object: Semantic Listening

Header: Listen

Tutorial: Musique Concrète, Listening Training

Summary: This Learning Object explains semantic listening by letting the learner listen a spoken text.

Learning Outcomes: After completion the learner will be more aware of the process of listening.

Listening is not the same in every situation. The composer and researcher Michel Chion writes in his book Audio-Vision that there are three different modes of listening: Causal Listening, Semantic Listening, and Reduced Listening.

Semantic Listening: Understanding the Meaning of a Sound

When we listen to spoken language, the actual sound of the words are not important. For example, you would understand a spoken sentence clearly spoken by a child, a woman or a man, although all three speak on different pitches. It is not important what individual sound the voices make as long as certain sounds follow each other.

Listen to this sound:

Sound: Spoken Text (Excerpt from Macbeth by Shakespeare)

Language is a good example for understanding the meaning of a sound. Another good example would be Morse code.

What is the meaning of the following sound?

Sound: Church Bells

Classroom Version

See Causal Listening – Classroom Version

Learning Object: Reduced Listening

Header: Listen

Tutorial: Musique Concrète, Listening Training

Summary: This Learning Object introduces the technique of reduced listening by letting the learner listen to looped sounds, while thinking about pitch, rhythm and duration.

Learning Outcomes: After completion the learner will be more aware of the parameters of sounds. The learner will also be able to separate sound and sound source and to listen very closely into musical aspects of a sound.

Website Version

Listening is not the same in every situation. The composer and researcher Michel Chion writes in his book Audio-Vision that there are three different modes of listening: Causal Listening, Semantic Listening, and Reduced Listening.

Reduced Listening

Discovering pitch, rhythm, duration and timbre within a sound:

When you listen to a sound, what can change? Is it a low or a high sound? Is it long or short? Does it vary or is it constant from start to finish?

(sound file: Schaeffer_Cing Etude de Bruits – Etude aux chemins de Fer)

That was weird... A piece of music just with train sounds?! That's music???

Let's listen to our sample again.

(sound file train sample)

OK. That's a train. But if you just forget that this is a train what else can you hear?

Look at the pictures while listening to the sound underneath each picture:

Can you hear the rhythm of the train running over the tracks?



Looped Train Sample Sound file

Can you hear the different pitches in the train sample?



Looped Train Sample Sound file

How long is the sample and how fast is the rhythm?



Looped Train Sample Sound file

How intense is the texture of this sound? How many layers can you hear?



Looped Train Sample Sound file

... so is this just a train???

Every sound has different characteristics. It is possible to listen to the sound of a train as a picture of the train. And it is also possible to listen to its rhythms, pitch, duration, texture... That is the same as having a piece of music: It has pitch ("melody"), rhythm and so on.

In the moment a sound is recorded, it is separated from its sound source: When I listen to the recorded barking of a dog, I do not have the dog as well! I only have the sound of the dog, while the dog is probably in a different city and sleeps in front of the fire.

If I now forget that the sound was made by a dog in the first place and listen only to the pitch, the rhythm and the duration of the sound, this is called 'reduced listening'.

Try it out with the train sample again:

Classroom Version

Play the train sample (or any other sound you prefer) in a loop to the class. To create a loop import your sound to Audacity, mark the section you would like to repeat with the cursor. You can check with 'zero crossing' if there are clicks in the sound. Then you can either copy-and-paste the sound or you can use the 'repeat' function (in the effects menu).

Follow the systematic given on the website and allow the learners at least 30sec to listen to the loops. Be careful not to stop the sounds too early. It will

feel much longer for you than for the listeners.

Learning Object: Listen to electroacoustic pieces

In this section you can listen to pieces of electroacoustic music:

Pieces using real-world sounds

Mixed Music Pieces

Noise Music Pieces

MAKE

This header introduces some compositional tasks. It will be developed further in the future of the EARS II project. This further development will include the 'sound organiser' software, an educational sequencer program, which will replace working with Audacity.

Learning Object: Composition Tasks

Header: Make

Summary: This learning object presents a number of composition tasks.

Learning Outcomes: After completion the learners will have composed pieces following different aspects of composition.

Website Version

Try to search for a sound which does not fit at a beginning and start with this a new piece.

Create a story and set it to music without using words.

Compose a piece just with one sound. You may manipulate the sound as much as you like.

Compose a piece and reverse it. Listen carefully to it again.

Think about two sounds, which normally do not occur at the same time and use them as your basic material.

Compose a piece with rhythm as major parameter. This can be either slow or fast. Or it can vary in speed. Will it be a steady rhythm or will it change?

Compose a very quiet piece.

Try to compose a piece with only spoken words as musical material. This can be a text from a text book, a newspaper article, a poem or just random words.

Take some sounds and compose a piece where no sound fits to the other. Then, take the same material and compose a piece in which everything fits very well together. Discuss/think about the differences between these two pieces. When you are finished go back to the well fitting piece and change just one thing, so it will be disturbing. Discuss again.

Set a photograph to music.

Create a sound walk of a ghost town. Think of how the sounds of the ghosts could be and how you can record them. Try to imagine your town first - is there a haunted house? Maybe a park? Are there people? Are the ghosts large or tiny? Are they dangerous? How would the sound change, if they were not dangerous?

Classroom Version

These tasks can be integrated at any point of the curriculum. It is recommended to complete the introduction to Audacity beforehand.

Action Cards

The following section lists the Action Cards that have been added to the Website.

1

Go through your house or your school and find some noisy objects. Explore the sound of each object. Can you make loud sounds? Can you make quiet sounds? What happens if you cover your object with something? Does this change the sound? Try out which of these objects sound well together, which don't. Discuss why. You could prepare a performance with your new instruments. Think about, how to start your piece of music. How will you build it up? How will you end it? The tutorials about 'noise music' and the section about 'improvisation' might help you for this.

2

You need: 1 loudspeaker, 1 microphone, 1 amplifier, a 9 Volt Battery.

1. Connect the loudspeaker to the amplifier.
2. connect the microphone to the amplifier.
3. Connect the amplifier to the battery.

How to play it:

Hold the microphone near to the loudspeaker. Adjust volume on amplifier, if possible.

Try out, what happens when you move the microphone. Does the tone change when you are moving it faster or slower, nearer to or farther from the loudspeaker?

You can also try to cover your loudspeaker with kitchen foil. If you place random light objects (such as paper clips or nails or small plastic balls) on the foil and move the microphone toward the loudspeakers, what will happen?

If you'd like to build your own amplifier, please check out the website [How To Make Stuff](#) or the [Makezine](#). The Makezine always comes up with a lot of creative DIY electronics ideas, so this is definitely worth checking out.

3

All cities have different sounds. In cities, which are at the coast, you can hear the sea; in urban environments you hear more traffic than in little towns on the top of a hill. Some people record sounds of cities and make music with these sounds. What is this music called?

Hint: Check out 'Hildegard Westerkamp'

4

Sit still and close your eyes. What can you hear?

Write it down.

Compare it with your neighbour.

Do it again tomorrow and compare your notes.

5

Go for a walk and listen to all sounds which occur around you. Focus on obvious sounds as well as on those sounds which are tiny and nearly not audible.

6

Collect all sounds which are typical for your school. Are there sounds which make your school distinguishable from other schools? Which sounds would be the same in all schools?

7

Listen to your environment, but try to ignore the sound source. Can you hear different pitches? Different rhythms? Different timbres?

8

Collect sounding objects and explore their sounds. Listen to all sound qualities you can hear. Record the sounds and try to manipulate the sounds with Audacity.

Tutorials

The Learning Objects introduced in the first part of this curriculum can be combined to tutorials. Tutorials aim to connect the three areas learning, listening and making. In the following all tutorials realised on the EARS II Prototype website will be listed. Some of them (marked with an asterisk have been described in the first part of the curriculum. The others will be introduced below.

Please note that this only one way of combining the Learning Objects to tutorials. It is possible to introduce them in many more combinations. In case of creating a new tutorial, it would be possible to give the learners the individual URL of each Learning Object of the tutorial.

List of Tutorials

Soundscape

Musique Concrète

Electronic Music

Noise Music

Electroacoustic Music and Pop Music

Hip Hop

Studio*

Composing a Piece with Audacity*

Sound Manipulation*

Performance*

Notation*

Listening Training*

Listening Challenge*

Soundscape

Soundscape is music that consists of real-world sounds. It uses sounds often from the environment and aims to create a new 'sonic environment' (sounding environment). After completion of the Soundscape tutorial you will know what a soundwalk is, you will have an overview of how to record sounds, you will have trained your ears and will have learned about the reasons to compose soundscape music.

- 1 Soundwalk
- 2 How to record sounds
- 3 Listening Exercise
- 4 Interview about Soundscape Music
- 5 Composer: Hildegard Westerkamp
- 6 Soundscape - further knowledge

Musique Concrète

Musique Concrète uses real-world sounds focusing on the musical parameters of the sounds rather than the sound source itself.

This is the list of all parts of the tutorial about this music. Once you have completed the tutorial, you will know more about different types of listening, the composer Pierre Schaeffer, and why this music is called Musique Concrète.

- 1 Parameters of a Sound
- 2 Samples
- 3 Composer: Pierre Schaeffer
- 4 Reduced Listening Training
- 5 Why is Musique Concrète called 'concrete'?
- 6 Overview Genres

Electronic Music

Electronic music is music that consists of generated sounds. The sounds often sound artificial and you might know them from either techno pieces or sound effects in cinemas.

This tutorial will introduce you to the 'father' of electronic music Karlheinz Stockhausen, it will explain what a filter has to do with music and also show you basic ways of sound manipulation.

Electronic Music Tutorial

- 1 Composer: Karlheinz Stockhausen
- 2 Sine tones
- 3 Filters
- 4 Try out: Low pass Filter
- 5 Try out: Band pass Filter
- 6 Try out more: Tutorial Sound Manipulation
- 7 Overview Genres

After that recommendation page linking to

How to compose a piece?

Sound manipulation

Noise Music

Noise Music is music that features those sounds we normally regard as noise. To find out more about this type of music and to listen to some examples follow this tutorial. After completion you will know the Noise Music artist Merzbow, you will have heard different noise music pieces and you will have done your own noise music performance.

- 1 Noise Music - what is that?
- 2 Noise Music Artist: Merzbow
- 3 Noise Music Instruments
- 4 Listen to noise music pieces
- 5 Noise Music - Try it out!

Pop Music and Electroacoustic Music

Learning that electroacoustic music is often made with the help of computers and uses electronic sounds, many people think of pop music, such as techno. This is not far off: find out more about differences and similarities between pop music and electroacoustic music, as well as techno and electroacoustic music. At the end this tutorial links to the Hip Hop tutorial, which will go into more detail about hip hop and turntablism:

- 1 Pop Music
- 2 Techno
- 3 Hip Hop Tutorial

Hip Hop

Hip Hop has a lot in common with Musique Concrète. If you have not done it yet, you might want to do the Musique Concrète tutorial afterwards. But let's first have a look into the Hip Hop Tutorial:

1 Hip Hop Introduction

2 Turntablism

3 Samples

4 Turntable as Musical Instrument

Terms introduced in EARS II (P) curriculum

A list of the terms taken from the EARS website and included in the EARS II (P) curriculum can be found below.

General terms of e/a music:

Acousmatic
Electroacoustic music
Electronic music
Sound-based music

Real world sounds

Acousmatic
Hip-hop / turntablism
Musique concrete
Reduced listening
Soundscape

Generated sounds

Electronic Music
Noise Music

Performance

Improvisation
Live electronics
Mixed work
Non-real-time
Real-time
Sound installation
Spatialisation

Visual Representation

Graphic score

Sonogram

Musical Material

How to collect musical material:

Improvisation

Recording

Sampling

Sound Manipulation

Delay / Multi-tab Delay

Distortion

Editing (cut, copy, paste, change order)

Equalisation

Filter

Loop

Panning

Pitch-shifting

Reverberation

Reverse

Scratching

Spatialisation

Time-stretching

Listening

Acousmatic

Aural analysis

Causal Listening

Listening strategies

Modes of listening

Reduced listening

Referential Listening

Semantic Listening

Soundwalk

Source recognition

Spatialisation

Texture

New Sounds

Distortion

Noise music

Sine tone (and overtone)

Spatialisation

Studio

Devices: Zoom H2

Editing

Instruments

Loudspeaker

Microphones

Recording

Sampling

Spatialisation

Roots in popular music

Hip-hop

Techno

Turntablism

Classification of sounds

Abstract sound

Environmental sound

Found sound

Hi-fi and lo-fi sound

Keynote sound

Narrative

Referential sound

Sound event

Sound romance

Sound signal

Sound source

Texture

The Appreciation of Electroacoustic Music – An Empirical Study with Inexperienced Listeners

Motje Mareike Wolf

Volume 3/3

Submitted in partial fulfilment of the requirements for the degree of

Doctor of Philosophy

at De Montfort University
Leicester

March 2013

Appendix B

Interviews with Participants of Test Phase 1	p. 431
Interviews with Participants of Test Phase 2	p. 469
Data of Test Phase 3	p. 484
Questionnaires 1	p. 485
Questionnaires 2	p. 492
Listening Responses	p. 494
Letters	p. 563
Teacher Interviews	p. 611
Lesson Plans	p. 621
Samples of Original Data	p. 636

Data from Test phase 1

Interview 1

Participant 1/1

Interview: Motje Wolf

Transcription: Motje Wolf

Motje: OK, That looks brilliant ehm first. So ehm can you explain me what this is.

P: Well, I call it Kidsweb.com. ... On the internet want to find something to do, so if you are 9 to 11 you can do some simple puzzles, like word searches...

M: hm

P: eh, you can find out about your char... your favourite character from TV, you can look for your favourite music

M: mhm

P: And you can have some very easy schoolwork for your age. And then for 12-14 year-olds I put ehm some media level games and puzzles and seeing if you can find out what's in your city and what you can do. And you can search for your favourite music as well as 9-11 year-olds. And if you're struggling with some homework, you can click on homework tips and find out how you can solve things and to get things organised.

M: mhm

P: And for 15 years and over I put a live chat in because not really for the eh 9 to 11 and 12 to 14 year olds because it is probably not safe for them

M: mhm

P: as they don't know as much... things to say... and well... things they don't know about what... what safety is

M: ja

P: And then they eh ?? links to other sites... if they want to find something they can search for an engine on an search engine, see, the xx site comes up and they can click on a link and then they have got more, much more difficult puzzles then 9 to 11

M: mh

P: and 12 to 14 year-old puzzles... and like teenagers are very obsessed with fashion so

M: mh

P: it could be see what the latest trend in the fashion trade.

M: aha, cool, and what do you think ehm can you explain me the puzzles?

P: That's just like, basic kind of jixal (2:13, I don't understand the word) ones, eh, bringing pieces together fi- like if there is different character from TV you can like you can the bodies can be mixed up and then you have to find the right one and

M: mhm

P: matches it to the right one and things like that

M: ok... And eeeeh what would be an easy schoolwork?

P: Things like where to put commas, where the... how to spell things, eh how to, where to put all punctuation things really

M: mh, mh

P: And eh, eh, you know things like just starting sentences with capital letters and loads things like that.

M: mh. And what would be eh more difficult homework?

P: eh, for these?

M: ah, eh, no for these. Homework tips, oh sorry

P: o homework tips?

M: ja

P: That would be like, if they are really struggling, they, and they don't know how to get things organised

M: mh

P: they can see, how to get it done quickly and you know they can arrange their schedule on an online

M: ja

P: timetable and figure out, when to do things... tick... having enough time for doing anything else. ...

M: ok... anything to add? What kind of link would eh you give them?

P: eh I don't know really, things like eh just websites eh into like there will be a search engine then they can and if they search it ... because a google isn't very good at these things so they can search it and then the name of the website could be there and the link could be blue (blue??) and then they can click on it.

M: ok. (3:53) (...) anything to add?

P: not really

M: Ok, cool, thank you first. 3:58 □[...] 4:29

M: So, you can't answer right or wrong, I just ask you now ehm, have a look at this (shows P picture 1) and tell me, what this website is about.

P: 4:40 eh (silence until 4:49) Well it is like... kind of figure out, what EARS II is all about, is it EARS II?

M: mhm

P: ja, and eh seeing what people like to listen to... eh... seeing what kind of things they teach ... all about technology and things... and like, it has a user name for people with log-in...

M: mhm

P: And eh if you want to find out anything there is search, so... you can look at that... and that's probably things for like parents to read about EARS II... s'find out if it's safe or not. So and if children want to see if it's safe they can click on that and see about it... Aaand... this's different types of activities you can do... or you can like... type things in, see what you can say about things, about music, and there can be like puzzles for understanding music... and there could be like a manuscript of five lines, then they can, like select a link to a note and then select the tone of the note and then put them next to each other on the map, on the five lines... and they can just see what it sounds like... and then listen would be... first you could see like... what other people have done on the website, you could search things and listen to it... for about their age... and I think that's it.

M: Okay. I show you the next page, ehm, if we click here, click (laughs), then you get this (shows next page)

(...)

P: Do I've to talk about this?

M: eh, yes. Can you, now, say me, what this... was is like you expected it and eh, can you say me, eh, what is this website about (laughs).

P: eh, well I think it is kind of like I was thinking, seeing like... what things are about and like, when it came and everything... and eh I didn't really talked about "understanding music" on the... (very fast)

M: sorry?

P: ??? didn't talk about understanding before

M: mh

P: But I think that is why I thought it will be like in my mind see what different types there are... who's in the charts and who's ... eh, what instruments there are and what kind of instruments there are, do they make like classical sound or are they mainly

used for jazz... and things like that. ... And different like, like guitar that's like acoustic, electric and some other ones, mainly those ??? ??? (7:54) you can find out about them...and... you can say how you are supposed to listen to music, how it works with your ears. And the timeline, you can probably select a date and see what music was like in there, in that time... o and the link's good as well... so you can see, you can go back to different places... and that's good, so you can go to different places as well, just an unmake(?) 8:28 as well... and how technology... how things, how things are recorded in a studio, how things work through microphones and things like that...

M: Do you see anything else?

P: ... eh... "play" is that ... like... ... eh you can go on different things to do different things...

M and P laugh

M: I don't know (laughs) you just guess, you can't be right or wrong, if you don't guess, what I thought or what we thought, then we just know that...

P: ja

M: ...we are not good enough (laughs)

P: eh and eh... ... and the different links as well, so you can go to like the music and the technology and the theory parts as well...

M: OK... we click now on music and within music on real-life sounds

P: ja

M: and we get this one, again the same question, what is this music about?

P: eh

M: eh, this music, sorry (laughs), this website (laughs)

P: well, it has got the links to everything as well, which is probably gonna be on every page, which is good (9:55), and a timeline, so it tells you, what pop(?) came into trend, in which part, in which, which kind of music became popular and eh this is real-life sounds... and there's loads of different... there are all the different things from like the spider diagram... they can click on that or they can go to different ones and... soundscape... what things they use on different vehicles, how people are entertained with music. Eh, how it is recorded in a studio, and soundwalk... eh, what different musique concrète, eh is that right concrète (laughs)

M: mh

P: eh different types... eh I mean... ja, different types of music and who's like famous or a famous person... and eh... it... like you can s ... show how it actually work through the years. And things like that. And hip-hop, different types of hip-hop, like New York, like how it is used in New York, whether there are famous artist there... and sample, you can listen to one through speakers and turntablism (spoke the word wrong), which I have no idea what that means,... is that DJ?

M: this? Ja

P: DJ, so you can s... like 11:38 the ones with headphones and the records and how it's used.

M: OK, what can you do on this page?

P: You can, you can eh listen to differe... you can listen to hip-hop

M: On this page, so not on eh eh where, so eh... just on this page.

P: this part?

M: No, ja (laughs) ok go on, go on, it's alright. I just asked the question: what can you do on, on *this* page, so if you ok... say, what you want (laughs) sorry.

P: Find out, what everything is about really.

M: mhm

P: and... just look at different articles, see what is popular

M: mhm

P: and eh, ..., o maybe it's kind of ... some, I think some of them are links, and some others, but I think most of them are different links and so you can find out loads of

different articles. And then soundscape, musique concrète, and hip-hop, loads of different things, you can find out, about that, so there's loads of different links everywhere.

M: OK, cool. If you click on "soundscape", ehm, you come to this page (shows next page)... and ehm... this page is ehm a tutorial, do you know what a tutorial is?

P: Is like before you actually use it... you kind of

M: eh ja, before you know what it is

P: ja

M: it's like a little course... and ehm... what do you think is this tutorial about?

P: eh, well, diff, well I've seen the links are there again (points to main navigation on top of the page) and eh, it's, how's different parts are used, I think like "easy" is probably like for younger people to find out about, and "advanced" is probably just for older people to know and like find out, what it's like soundscape.

M: mh

P: and eh, ... medium

M: Ah ok, ja, you can't read it, ja, it's medium (laughs)

P: eh, you can find like, it's radio interviews, there's about... what else, you can listen t eh, a recording of the radio ??? (14:03) about how it's used... probably... eh Hildgard Waterkamp, Westerskamp

M: Westerkamp

P: ... ooh, I don't really know, what that means...

M: It's her name

P: oh /M: It's just a name (both laugh)... puh (laughs)

P: she's probably (laughs) a famous person to do with soundscape, so you can find out about her, and then "soundwalk", you can probably listen to different things... and eh "how to recording" it's probably, eh, (coughs) how recording's done and there's probably like you can do it yourself as well, just for a little bit.

M: Ok, eeeeh just a moment (gives the next paper) just look at it, so this is, when you click here on soundwalk... and 15:00 [...] 17:33 (silence while searching for a file, short chat about the macbook, father comes in and offers tea) Ok, what can you do on this eh on this website, page...

P: well ??? 17:41 the links again, shall always s gonna mention (not sure about the last 4 words)

M: mhm

P: eh, which I think is really good (17:45) ehm, you can listen to something and then "show text" is after you have listen to it, ..., what during the listening to or after you listening to, I don't know which, you can find out, which eh what it's all about and who has done it, who has made anything like that. And then "back" to, back to, how to recording and listen to soundwalks like to ... think back to the page, you were just on and then you can go to different ones

M: OK 18:25 Ehm. Would you like to, eh, if you see that, would you like to listen to that?

P: Shall I ??? ???

M: You can do what you want to and I just... If you press play, I press play too. (laughs) No, you have to press play there, that's your website. OK. (Plays the soundwalk file)

M: OK, what do you think about it?

P: What do I think about it?

M: What do you think about it, ja...

P: Well, I think the abs??? 22:12 of it is, if people can't really hear the person speaking, they can read that as well. I think it explains it very clearly and slowly, so that everything can be taken in, e – except all at once, which can get confusing. Eh but I

think one down of it was eh the reader was a bit... not very... completely easy to listen to...

M: eh, can you say that eh a bit more detailed, so what was...

P: What? I think it was just really I think the reader was sounding a bit dull and it wasn't really engaging

M: aha, ja?

P: people listening to it

M: ja

P: As as if the people reading as if people listening to it could think I could do lots of better things than this. And they're not completely taking it in.

M: mhm

P: And that's the only down of it really, but I think the rest of it is good.

M: ehm, do you think ehm, how was the time for that? Should it be longer or shorter?

P: eh, well, it shouldn't eh, I don't think it shouldn't be any slower

M: mhm

P: but I don't think it should have been, it could be a little faster, but not too fast.

M: Mhm, ok. OK, there is one page left. (laughs) eh, I'll get that... And now, we go back to the first page, so we click here to understand, we click on music again, here, so just that you no, o no wrong: We click on understanding and we click on theory, so another header now and then you get this (gives the next page). What do you think is this about and what can you do on this website? (laughs)

P: ehm, I think, if you click on as it says "click on any object in this room", I saw the links, which I think is really good as I mentioned all time

M: mhm

P: eh

M: (laughs) hmh, ok

P: If you click on any object like the clock, you can make a ticking noise, but probably not that. It (If?) like the stereos and speakers, they could show like, they can make a noise and have a bit of text, saying why, how this works through your ears and things like that. And like is that a potato?

(both laugh long)

M: eh a kind of potato (laughs) that's a figure, just take it as a figure (laughs) ok maybe we have to think about that again, ja... it should be an ear, but ok, maybe you didn't see it, it's no problem, (laughs) you can't do anything wrong, we have to draw better (laughs) ok, this potato, ja (laughs)

P: ehm... I think if it's... I know, that potato...(both are still laughing) it can show like how sound works through ears (laughs)

M: (laughs) sorry, o ok, ja, ok sorry, ja, I hear you.

P: eh, and the curtains... they can make a "shh" noise

M: mhm mhm

P: But I think that's it really 25:45

M: OK, if you want, eh you can click

P: ???

M: O sorry, oh (laughs)

P: Is that a baby? (points on the armchair with the figure on)

M: (laughs) kind of... ok just say, what you see.

P: (laughs) or that is a doll...

M: (laughs) that's a baby potato – ok?

(both laugh)

P: ??? 26:01 that looks like a dog with a hat. Or a barett(?)

M: jaaaaaaa, ok

P: ??? ???

M: don't, don't, don't mention it (both laugh) OK, it's ehm, basically it's a figure with a headphone on and sitting on a chair

P: aaaohhh oh, I can see

M: ja ok

P: eh I think like everything in this room shows like how things are projected to your ears

M: mhm

P: not with potatos

M: (laughs)

P: and then, the curtains, I'm not really sure, they can make like a clashing noise

M: mhm, mhm

P: ??? ??? 26:38 when they go across but I'm not sure if that's really was...

M: ok... if you want you can click on everything, what is black

P: oh

M: just at the moment... later it will be everything what is in this room, but now we can also click on the black things. So if you, you can start to click and I give you what comes then.

P: potato (laughs)

M: you click on the potato, ok. You get this text, and this text is then eh, appears, ousps, here. (makes some humming noise, why ever she is doing that) But I'll give you the text better, (laughs) so you can read it better. (gives the paper to P)

5sec silence

P: (whispers) do I speak?

M: You can do, what you want to (laughs)

P: ja it explains about the Greek... man... ??? ??? 27:30 it's not really ??? it's a legend... Pythagoras... and... no... and...

At the same time:

P: I'll get that

M: you can just read it, if you want to... just for

P: Like Pythagoras is like a theory a theory with maths... And... ??? 27:52 is shaped really, the same to do with ... three sites, if it's triangle. I think Pyth, Pythagoras sounds eeh like a eh Greek name, kind of... explains... how... like probably Pythagoras' theory is used... and how people... figured out how to listen to lots of things... and... ... and what they had to do to obey... and explains about acumat... acousmatic music... "when we speak now about acousmatic it doesn't mean that we are not worthy to enough to hear the music" (7sec silence), ja it explains, how it's, how it works... and eh our like ... disadvantages... ah eh not disadvantages and how it's used really like without speakers (5sec silence).

M: ok. And eh, do you want to click on the loudspeakers as well?... (laughs) that was a question like "do it!" (both laugh) then you get something else.

P: What about the curtains?

M: O this were the curtains, so the potato and the curtains, because this was hiding behind the curtains... (laughs)

P: aaaaah, ah, I see

M: ok... ok, just read the text, just read it

P: Just read it

M: Just read it for you, ja

P: it just sound like JUST read it

M: ah ok (laughs)

7seconds silence

P: I think it's good because like, it, it interests children about like the picture like walking speakers and like sound is projected... and how sound moves (7sec silence) s funny

like that's not in real life. Current technology (16sec silence) And it has, explains about sss spa-ti-alisation

M: spatialisation

P: jaa... and how it's used, how sound is, goes and works in space and you can listen to some examples as well.

M: OK cool. What did you mean with ehm with, it is not real life, ehm it just

P: No I mean like, it says of course you don't really need this walking speakers, because it is impossible to ??? 31:15 this with the current technology

M: ah ja okok, ehm, ja, well done, thank you very much! What do you think if you just ehm take all these things, would you, would you like to see more of this website or would you think it's boring or

P: ehm, I think it has ups, mainly ups, just like one down and that was only the speaker

M: mhm

P: really... on the... as soundwalk thing

M: ja

P: ja I think it's good about the links and it shows which one you are talking to like with the orange writing

M: mhm

P: and eh, I think all the links on the top are very good, see nowhere, so you can go to different things... and eh you can, I think it's good, because like people don't really children don't ... is this for children

M: it's for people in your age, so

P: ja like they might get a bit bored, if they just like eh, if they see, so, just some text, but like this, it says click on something it's like much more engaging for them

M: ja

P: ... what's the potato?

M: (Laughs) potato... maybe we should change that to a potato (laughs) OK, would you like to hear more about this music? A a also (German...) like the music, ehm, what kind of music is that, ehm, you think is eh described here on this website on this website...

P: ehh, I think, really how sound is projected, and how it's recorded and

M: mh

P: and loads... basically, how music is developed, how it's come across, how it's... all the different types of music

M: mhm, how the different types of *which* music?... so do you think, no go on...

P: I think like nearly an, what, like on the

M: ja ehm

P: that page, it says ??? 33:16 a sound, and eh, like, eh it's good to have a question: do you need a score, because it's probably a question, that a lot of children ask

M: mh

P: don't really know, if you can find out there (sehr undeutlich)

M: mh

P: and eh... I think it's music especially(?) 33:34 just try to educate children about different types of music... and like, basically everything about music, but not like songs in the charts and things like that, just, how it's used, projected and lots of things like that...

M: Do you think, you find something like, eh, we sing in the choir?

P: ja

M: and do you think you find something like you're playing on the piano?

P: on the website?

M: ja

P: eh, I think there is probably a link somewhere about eh choirsounds... I think it probably has things like Chinese music, Indian music,

M: mh

P: and like choir music, you can listen to a sample of that, and ??? 34:17 piano pieces, but not no things like popsongs or rock songs in the top charts

M: ok. Anything to add to this?

P: it's good

M: it's good? Ah brilliant (laughs)

P: I like the potato

M: you like the potato (laughs) ok, I like potato salad... (laughs)

(both laugh)

34:34-35:00 random jokes, some paper noise and not necessary

(...) Questionnaire

M: OK two questions left: What is a soundwalk? (laughs) I'm sorry, you can't do anything wrong, ja? Just, just say what you, what you

P: It's... what the man just said uhm.

M: laughs that's cheating

P: laughs ... It's like different types of sounds like ... edit ... things like where you listen to different sounds and compare them.

M: mhm. And what is acousmatic listening? ... acousmatic music

P: what? say again again I'm so sorry

M: OK What is acousmatic listening (spoken very clearly)?

P: ... oh that... that's the one on the bottom of the sheet about the, about the potato

M: laughs

P: uhm

M: ja?

P: I can't really remember

M: Mhm.

P: It's something about ... uhm... I don't know

M: It's no problem if you don't remember. Just try if you... get something

P: Uhm, I think it's really how sounds are used or different ... ways of projecting sounds

M: There was something with a curtain...

P: ja

M: ... was standing behind the curtain?

P: ja the ear.

M: the ear ja... OK brilliant thank you so much.

Interview 2

P2/1

Interview: Motje Wolf

Transcript: Jeff Mettlewsky

M: Ok should we do- just forget that there is here, maybe move it next to the camera. Just forget that.

P: And well it'd be good if I had pictures of what reminds me of the music and how it expresses me and if the pictures could be 3D.

M: Mhm.

P: So you could, sort of like a projector and you could see all the different notes and all the different phases that the person has done to create the music.

M: Mhm.

P: So you could, maybe you could do it yourself if you had the equipment and you owned a computer. And it could sort of give you things out of the computer. So if I really like the piece of music because it sort of has different volumes and stuff and you could control the volumes to how you like. Stuff like that. And it wouldn't be on a computer 'cause I don't like computers.

M: Mhm.

P: It would be, it could be in a book so if you opened a book then it would sort of be in a book 'cause I like books and computers are just confusing.

M: Laughs.

P: And I could decorate it with whatever I wanted and then there could be a program so you could do it to your favourite music.

M: With what would you decorate it?

P; Uhm you could decorate it with any type of colours and borders and if you see something that you really like. Sometimes I see things and I don't know how to draw it or write it. And you could sort of just take a picture and then put it onto it and make it larger or more of it.

M: And what colours would you like on it?

P: Uhm my favourite colour is lime green and sort of pinky and blue so maybe have stripes as well and then have the music notes and then try different phases to how they made it on yeah. And how, why I like it, like the reason 'cause it's relaxing or live music it helps me. Sometime music helps me work and I've got homework, stuff like that so yeah.

M: And what will be on the website, what can you do on?

P: Well it would be on the website and then you could sort of pull things out of the screen like books and then all the different notes. And then it would just be like a really easy thing to remember instead of typing www dot (2:56 Not understood word)

M: Mhm.

P: it'd just be like a word or a letter

M: Mhm.

P: That it would just come up with and uhm you wouldn't like have to have a log in number or anything it would just like be there. And it wouldn't take very long to download even if you didn't have broadband. 'Cause that's a bit annoying if you don't have it. But yeah.

M: Okay. Do you like to draw something still or?

P: Mmm yeah. I could.

M: If you don't want to it's okay it's okay it's just for helping but you were really really creative without the pictures so no problem I thought I can sort paper in the time but okay, I couldn't so it's here and okay after that- so it's okay with the drawing.

P: Yeah.

M: It's no problem. I would like to show you some pictures my colleague has drawn from a website we develop at the moment. And uhm just ask you for your opinion what you think and uhm so just take time and look at it and just tell me what this website is about.

P: Uh the words are too long.

M: (laughs) The words are too long.

P: I really don't know what any of them mean. I think it's like what you're meant to click on.

M: Mhm.

P: To go to different to different things. Uhm maybe it could be a bit more creative. But I like the picture. It's really funny. Uhm and it would be good if some of the things- sort of like these are a bit confusing.

M: Mhm.

P: And it'd be good maybe you had more information about them before you clicked onto them so you'd know.

M: Mhm.

P: Sometime you have to click back

M: Mhm.

P: With that. And it'd be nice if it had a board.

M: Mhm.

P: And (5:04 Not understood) on whatever that is to describe it, it's a bit long. It'd be easier if maybe it were shorter and maybe lined or in a snappier-

M; Mhm. What do you think uhm happens if you click on these things or these bubbles?

P: It would probably go to another connection.

M: Mhm.

P: And another sort of tab.

M; Mhm.

P: And then it would have the information on whatever it was on.

M: Mhm.

P: But yeah I think that's from my experiences, I don't know anything else how, what that'd be used for.

M: No, no no it's no problem, it's no problem. And what do you think what happens if you click on understand?

P: Uhm it would tell you about the el-ectro-a-coustic music.

M: Mhm.

P: And I don't know really know what it is but.

M: That's no problem. That's typical (laughs).

P: Yeah. But I like how so if you can make music and how you can listen to it so make your own and sort of take bits from other pieces. And but yeah and EARS II it's a bit weird. It's funny but it's just a bit- I don't see how it's all connected to the musical side but yeah.

M: Mmmm okay that's working title EARS means electroacoustic resource site.

P: Ohhh.

M: But nevermind it's not a problem.

P: That would actually be quite good if it was a bit easier to sort of- some times it's easier to know sort of what they are like words like but that's a good idea.

M: (laughs)

P: That would be good.

M: Okay if we click on understand.

P: Mhm.

M: Then you get this. Uhm yeah just take your time and look if you- do you know what you can do there, what you, what is this about?

P: Well it might be a timeline.

M: Mhm.

P: Of all the different- how it evolved I think. And these are things that you could do, like you could explore it more and you could play. Uh I'm not sure whether you're meant to click on them or if that's meant to tell you what it is. And that might be good if you can go back. And I thought that that's a bit confusing because I thought play and make- no sorry they're not the same thing. But that's good 'cause you could search different things. Um are you meant to click on them?

M: Mhm.

P: To go to different-

M: Yeah.

P: It's a bit confusing clicking on something else and then something else and then something else. So it would be better if this page is about understanding music, understanding how the music is that you could do. Maybe a bit on the history and how it sort of developed and how it was made, instead of having more things to click on. But it's good timeline and then there's -ust a bit confusing 'cause there's quite a lot of different things. It- maybe if it was a bit simpler it would be better.

M: Ok

P: But still exciting.

M: (laughs) Good! And uhm if we click on music and then on real live sound then you get this. What do you think is that?

P: Uhm it tells you music and real live sounds- is that meant to like be what it sounds like? So that's a type, these are all different types of music which are like real, what they really are I think. And I think sample, does that mean you click on it and then you can sample what that is, sounds like? Or is that just a type of Hip Hop music?

M: Don't ask me questions because

P: Oh sorry

M: No no, just say what you think because if you don't guess what I thought or what we thought then we did something wrong so... (laughs). I mean I could I can answer you after that everything.

P: Ok I don't understand what that is unless it's oh it's all those things so if you click on there then you could still- that's quite good 'cause you don't have to go back there. So you could still go on there. And the soundscape, I think- I don't know what it is, it's something to do with trains and planes, maybe the sounds that they make. So I think real live sounds is- soundscape is some kind of sound that's used. And that is music con-something. Concrete. And then Hip Hop and those are all the different times that it came about. But I like the way that you can still have that and that. And I think if you click on that then- but it's still a bit confusing 'cause there's so many words.

M: (giggles) Yah

P: But uhm yeah and you can still go back, that's good.

M: Ok if we click now here on soundscape you get this. Just put that a bit together that you don't get confused with the other pictures ok.

P: Soundscape is so-

M: Do you know what a tutorial is? Ok a tutorial is a short course uhm like to explain something.

P: So is that going to tell you about these and then these are different ways that they either tell you about it or the first part- are they like workshops. I don't know.

M: No you don't, you can't know! I mean you don't know what's behind it. Just guess what's could be.

P: Well it could be like how so how you record, an easy way of recording and then going into more details and then more detail about it I think. So different ways depending on-

M: Mhm.

P: How you do. And real live sounds and that's how you got there I think. So you know how it got there. Yeh.

M: Yeh.

P: That's good 'cause sometimes you get confused on how you got there and how you get back.

M: I know that.

P: Yeah and I like how that is like that.

M: This diagonal one.

P: Yeah and the colours are good 'cause it's all colour coded and it'd be better maybe if these were actual the colour of that.

M: So that the words are in the same colour might be easy oh ok.

P: You could sort of instead 'cause you might get confused on which ones they are.

M: Ah yeh ok.

P: But that's good because it tells you which one you're on so you don't get confused.

M: (laughs) Ok now we click on soundwalk to start the first part of the tutorial. And we get this website or this page and-

P: So soundwalk you could listen to what it is.

M: Yah.

P: And (14:08 Not understood) show texts. Am I-

M: You may listen to it if you want to. Uhm you can adjust the volume here so uhm it's not it on I say if it starts, when it starts. It should start now.

P: Oh yeah.

M: How did you like that?

P: I thought it was- I didn't actually know what soundwalk was and then I know what it is now because it explained it well and it was slow and clear. And uhm I didn't know that that's what composers did, they went for soundwalks. That literally is a soundwalk and they recorded it so I learned a thing. And it sort of yeah, it was good because they showed you different ways how they use them. Yeah that was good. Uhm but show texts?

M: Basically-

P: Is that what they said?

M: It's just here.

P: Oh so if you're deaf you can just read it or-

M: Yeah or yeah, or if your sound doesn't work you can connect.

P: Ok oh that's good, yeah. Oh I thought it was something you click on.

M: Hmm

P: No, that's good. And back and those- that's how you can go back I think.

M: Mhm.

P: Click on it and you can go back to what you previously looked at. And yeah it was a good recording and it's nice and big so you can see where you're meant to press.

M: Mhm.

P: But it would be maybe good if they had some pictures to go with it.

M: Mhm.

P: Uhm but it's quite good 'cause it's easy to think about it in your mind like what it would look like-

M: Mhm.

P: And stuff like that. So it was a good person speaking, describing everything. So yeah.

M: Do you think it was too long or not or too short uhm?

P: I think it was, it wasn't too sort of boring it kept your attention. Uhm but it would have been nice to know if people like, composers like from a long time ago when they didn't have recorders, how if they could've still done that but just sort of kept it in their mind or written it down.

M: Mhm.

P: Uhm but overall it was really good and it wasn't too long or too short, it had the right amount of information.

M: Remind me I can answer you your question uh after, when we are finished ok?

P: Yeah ok.

M: If you want to know that I can answer that. Good uhm now we go back to uhm, so we are here now under real live sounds, soundwalk and now we go to uh still to understand but uh we go to uh, (don't know where it is, it's gone) to theory, to this header and there you get this. So what do you think can you do hear, what is this about?

P: (reads) Click on any object in this room. So maybe click on something, oh that's an ear. If you click on something then maybe these would tell you, well they would sort of make a sound of maybe what that person uhm maybe a composer's listened to and - but it's good that you can click on anything but I'm sure whether it would tell you text or voice.

M: What would you prefer?

P: Uhm I'd probably prefer it in a, like a little text bubble because if you don't have headphones or something. And if you're in a learning environment it would be annoying 'cause everybody would be listening to it at different times and it would be a bit off-putting. But it's ok like if you have just a couple words via voice, it's not very good if like if that wasn't on headphones then it would be quite annoying if it was in a classroom or somewhere so, but I think it would be better if it was in a text bubble so yeah.

M: Ok if you want you can or no, I want you to click (laughs). Uhm on everything what is black you can get some uh further explanations. Uhm with what would you like to start?

P: Ok uhm what were these speakers?

M: Basically if you- my idea was if you click on that you get the text like this on the floor but this is the wrong text so just uh I give you text for it. Uhm so just (reads) walking loudspeakers, uhm it looks a bit weird doesn't it? Actually the idea behind walking loudspeakers is to have moving sound. Of course you don't uh really need- Or do you want to read by yourself?

P: Ok.

M: Maybe you are quicker.

P: Ok yeah that's good.

M: Yah do you?

P: That's good the way that the picture- I didn't actually get exactly if they were moving so you might want to make it a bit more obvious but no it's good idea to have actual sort of speakers and it's good if it was like on the floor.

M: The words?

P: Yeah if you clicked on it. And if it says here are some examples ok. I heard it in a cinema and I went to see James Bond and they were like saying, they were advertising a radio show and they said look at all these weird sounds and stuff. And there was a car and it went across. And that was really good.

M: Yeah, that's really good isn't it? You can uh-

P: Realistic.

M: Ok then you have the other thing, it's uh-

P: The curtains and the ear.

M: Yeah ok so now you get it. You can also read it hear, maybe that's easier to read.

P: Ok. Is it the same thing?

M: Yeah.

P: Is it on these is it?

M: No uhm we didn't finish it.

P: Yeah it's good the way that you said uhm you could have a uhm could have had him in a math lesson.

M: Sorry I didn't-?

P: You could have had him in a math lesson.

M: Mhm.

P: So uhm yeah and it's good the way that you told the story about what acoustic really means and like the picture, 'cause I didn't understand it at first but that explained it.

M: Yeah.

P: Uhm yeah it was good. It's a bit long or I'm not sure if it might be a bit too big to actually put on the screen but I don't (26:42 Not understood).

M: Ok yeah yeah.

P: Yeah.

M: Ok thank you very much that was all about the website. Would you like to use this website or do you think, no, it's no good it's (26:56 Not understood)?

P: Uhm if it was in a music lesson so about music and stuff, whatever that is.

M: (laughs).

P: I think it would be good. But it would be better for sort of uhm college students rather than sort of secondary school, which I'm at

M: Mhm.

P: Because uh the words are maybe a bit too big and it might even- if you had to use the words you could put like what they really meant-

M: Mhm, mhm.

P: In sort of an easier way of describing them and uhm and if you had like all the different sites uhm, I'm not sure how you'd do it but it might be easier maybe to just cut down on them a little bit 'cause you have to keep clicking on them and clicking on them to different ones. But I probably would use it if I was older, but at this age I'd say it's a bit too- well it's not too sort of um detailed, it's just certain bits sort of like this with pictures would be better and then the other bits uhm it's with all the different-

M: Oh yeah go, show.

P: That's good for my age.

M: And the soundwalk yeah.

P: And that's good 'cause it's quite simple and clear.

M: Tutorial yeah.

P: But this yeah, that's good, but maybe if you had that-

M: The timeline yeah?

P: That if you had one for each one.

M: Yeah?

P: And the different things and then if you didn't have all the words around them, just had soundscape and the music and then the words could on something else. And you could have like uhm-

M: Mhm.

P: if you had soundscape then they could tell you like the sort of basic what it is.

M: Mhm.

P: And then you'd go into the history

M: Mhm.

P: And the listening to it and stuff like that.

M: Oh ok mhm.

P: So that might- but it's good the way that you can go back-

M: Mhm.

P: It tells you where you are. And the same sort of with this, if you clicked on music and all these things and then there was like a home page for them.

M: Mhm.

P: So it might be a bit easier but-

M: So you get confused by these words and all the bubbles?

P: Yeah that's too- yeah and it would be ok maybe if you had uhm two or three different words-

M: Mhm.

P: Uhm 'cause if you clicked on it it would automatically go to home.

M: Mhm.

P: But if you didn't want to go to home then you could just go to maybe the bigger things.

M: Yah.

P: Like if you wanted record or listen.

M: Yah.

P: So if you had record and listen and stuff like that but you had like history of them instead of having them on the bottom you could have it's own page-

M: Yah.

P: Just for the history. But uhm overall I'd say that if you sort of made it slightly less confusing-

M: Yah.

P: Then I probably would use it for my-

M: Ok.

P: In my school.

M: Yeah.

P: Yeah.

M: Cool! (laughs) Good. I have some questions left...

Transcript Motje Wolf
After the questionnaire

M: Now two questions, you can't say anything wrong, ja? Just... Can you explain me what a soundwalk is?

P: A soundwalk is when a composer or someone who... anybody uhm go for a walk and just sort of records it and then sort of listens to all the different things like cars or birds and all the different things in the environment and stuff so he can use it... they can use it in their work

M: good uhm and what is acoustmatic?

P: I don't know

M: Acousmatic listening...

P: oh

M: ... acousmatic music

P: ... I think it is... I don't know

M: ok no problem, laughs ... absolutely no problem

P: I wasn't, I oh it's that... o ja, it is about this man and he was really important or something. And some people are allowed to listen to his music and live with him and other people weren't. I don't know whether which group of people, but they used to hide behind the curtains, because they weren't allowed to watch and or something that's where it comes from and it helped with the picture ... ja ... I think...

M: Ok

P: something about curtains

M: brilliant. Thank you very very much.

Interview 3

P3/1

Interview: Motje Wolf

Transcript: Jeff Mettlewsky

M: So, can you explain me what you have drawn?

P: I've eh, I've called it the Music Club, because I'm not very good with names so.

M: (Laughter) It's a good name!

P: So I've decided you have to like put like a password and a user name in to join the Music Club, yah?

M: Mhm

P: And then uhm, you can like when you get into Music Club, you can make your own music. You can sing on the karaoke, and choose your own songs so the words come up. You can put, you can like make your own page up so people can look on your page, and uhm you add your own photos, you can put movies of you singing like and like you can connect your phone to it and everything so like you can like put stuff off your phone on it. Uhm I thought you can put MSN on it and your email address so like you can send people messages about music and everything. And then I thought that you can just like play music on it as well, like classical and pop music and stuff. And then I wrote uhm like there's a discussion board where you put your own discussions on any music. Then I thought, I don't know if you'd be able to do this but I wrote, you can like make up your own interview to send to an artist you can and then try to send it and see if they reply.

M: So you you uh you do the answers or you do the questions is it?

P: You do the questions, sent to an artist yah?

M: Ah OK

P: And the you send them and see if they reply. But then you could always just like send to your friends and pretend they're artists then they reply.

M: OK

P: And then you can put like, you can ask people to be your friends and then you can put them on like, say if they reply and say they want to be your friend, then you put them on the list and you could just like connect with them sort of thing,

M; Mhm

P: And then start making your own music with them, together. And like then, then, if if they reply as being your friend then like you can always like - only if they reply as being your friend then you can like send eachother your phone numbers and text eachother with uhm stuff about music. So

M: OK!

P: 'Cause I thought it's a way of like making friends and then have them for music stuff.

M: Brilliant That's a, there are a lot of ideas. Cool. Anything to add?

P: No, I think I did it I think yeah.

M: Ok cool. May I have this then ah?

P: Yeah but I am a dodgy speller.

M: Oh that's no problem. I am a dodgy speller too. So I'll put this here and..So how do you feel? Everything ok?

P: Yeah that's fun. I want to do this. I want to do this. This would be well fun.

M: Laughter

P: It would, it would be so fun, I'd love to do this. This would be a well good job.

M: Giggles. Ok we'll see what we can do! Laughs

P: You can employ me. Giggles.

M: Ok. I'll ask my professor if we can employ you! Ok the next thing is that I show you some pictures and I ask you some questions and you just say what you see, what you think what you...so

P: Ok.

M: This is a picture of a website. And uhm what is this website about? What do you think?

P: Uhm it's uhm it's about listening to uhm music, like lot's of loud music and stuff. I think. And it helps you learn about what music is. Uhm what is uhm ectro-ous-tical?

M: Electroacoustic.

P: Oh right. Oh I know what that is. Laughs

M: Ok? Sorry it's maybe not best written yah.

P: About - silence- so would about ears be like tell you like how music goes through your ear?

M: Uhm I can't answer your answer now but I answer you every question you have after we are finished, because if you don't guess what we want to then we are wrong so, just say what you think is this website about?

P: Ah right, ok.

M: But keep your questions in your mind, don't ask me and I'll try to answer everything at the end. Ok?

P: Oh so get to log in to this and it has all your curriculum uhm like music do your curriculum and like what you can learn like we did uhm we do music in lessons and in school so yah. Oh yeah, we get to make our own music! Oh cool. We get to listen to music and understand the music. I think that's cool and then I don't know what the about ears is. Does it tell you - I don't know.

M: It's no problem if you don't know.

P: Is that like - and search - is that like going to be like a search engine that you can search for any music you want to see and hear?

M: Yah

P: I think that's a good website! (laughter)

M: (laughter) Cool!

M: Ok, I have another page. So if you click on 'understanding' or 'understand'

P: Yeah?

M: Then you get this second page.

P: OK. Understand, listen...

M: What is this about? What can you do on this website?

P: You can umm - (reads) 'music technology theory.' So you can learn about, like understand the new sounds in the pop music. Like I think its - you hear like all the latest things and understand like how it's all like working. You understand the technology of the new musics coming out and everything, like all the tech like musical instruments and stuff. Hmm (reads) 'sound m-'.
M: Sound manipulation (19:06 Not understood word) is there written.

P: Oh cool. And then theory you s- (19:14 Incompleted word) the performance, oh there's a dictionary, that's clever I think. (Reads) How do you listen to music? Do you need to score? Do you need a score? New types of sounds. Oh I like, I think, I think new types sounds good 'cause then you find out like all the new stuff. Like 'cause people want to know late what's the latest stuff that's cool.

M: Hmm

P: (19:40 Not understood word) the music. I read really quietly don't I?

M: Sorry?

P: I read really quietly don't I?

M: Yeah that's ok.

P: So 'cause normally I read in my head. Oh cool! I like the picture, I think it's cool. (Reads) Explore, play...do get to play games? Games are the best!

M: Ok.

P: You got to keep games! You can't get rid of games. It doesn't matter what anybody says. Games have got to stay.

M: Ok (laughs).

P: When I see games that's like go on all the time. Real live sounds? Generated sounds? Is competition techniques? Oh you get to learn techniques of music. So that means if you like knew like loads about music then you learn like so much. (Reads) words, sounds. Oh I love the new instruments that'd be so cool. Would you have like pictures of them and then like you see them and then -

M: Yeah that's another part, we don't do that today but uh. Do you think would be good to have pictures in?

P: Yeah well I think you should have pictures and then like what the musical instrument is and then you could have like a little play button to make the sound of the instrument.

M: Mhm

P: 'Cause then people like think like to buy them or like you know (21: 15 Not understood word) I think it'd make people want to take up a new instrument.

M: Yeah

P: I love pop music. (21:25 Not understood word) with dancing to it.

M: Do you see anything on the website?

P: You could have like a little dancing person like that you know, disco dancing or something. 'Cause I like disco dancing just like little pictures of people like moving pictures like around the thing, like dancing, and stuff like that. 'Cause then there's cool pictures then. It's like click on here to listen to music and stuff like that. Or lots of stuff then then it'd make it more complicated. I like it. Oh is this a timeline?

M: Mhm

P: Oh so like all the music in 1940s and oh that's well cool. 2010. Hey the future's music (laughter) well that's what is future!

M: It's only one year! (laughter)

P: It's still the future.

M: It's still the future. What do you think is in the future?

P: Me!

M: You? Ok brilliant! Uh next part?

P: Ok.

M: Uh if you click on music and then on so here and then on real live sounds then you get this one.

P: Ok. Sounds walk. So what do get to listen to like loads of sounds - Hip Hop! Sorry I saw that there.

M: Yah at the time.

P: Hip hop's cool. What do you get to listen to then loads of Hip Hop? Soundscape. Hey that'd be like a landscape except with sounds. Would it? Like creating a picture in your head but using sounds. Like say a sea sound to make a sea and then that would be cool. That would be well good. Hip Hop! Oh does that (21: 28 Not understood word) it's from, New York? I'd love to go to New York actually (laughter). I'm obsessed with Hip Hop and stuff. See a soundscape recording, trains and planes as music. I was right! (laughter). Well I like being right so I'm very obsessed with it. Do you get make your own soundscape? Would like you have like loads of little sounds at the bottom of loads of different things and then get to put it on a page and make it like a soundscape?

M: Oh no you can see the next page already! (laughs)

P: And then music concrete it's french. I'd do something in french I think french stuff is really effective because I put like I did this thing once I wrote and I got it in french at the top and I got a well high mark (laughter). I did a got a well high mark. 'Cause it just sounded well good. (Reads) Music with trains and planes was that before - I'm confused. You get to listen to music? I don't know what 'music concrete' is. But I'm sure it'd be good (laughter). But I love Hip Hop. You should have like a DJ or something like your own like little DJ decks things. Like you know, sort of they come up on screen and you get to like move the hand with the mouse and stuff and like press arrows and buttons.

P: Sort of like a dance mat thing, yeah dance mat thing. Like notes come down and press it and sort of like I think hands should come down and you get it and twist it and stuff like that.

M: The record then on the record player?

P: Yah yah. Sort of like a bop it. Or yah like that. Or you could do that for playing a guitar or something as well like a bop it. Like (makes sound) twist it like a bop it.

M: (laughs).

P: I only ever used a bop it once but I think they're cool.

M: What is it?

P: It's a bop it's like this thing and there's this guy talking on it and it goes bop it and you hit the middle, and it goes twist it and you twist this litte thing on the side. So if it was a DJ the DJ would just be saying like loads of random things to do like spin it and then you spin the decks, something like that.

M: Yah ok I see yeah (laughs). Cool.

P: That's what I think, 'cause I like it.

M: Good. Anything else to this page?

P: Make? I like making music. Well like there's no music pages that really make stuff you know 'cause I've been on it before and they're just like, some of them get a bit boring 'cause they have like loads of random stuff like loads of writing about like different music, about the composed music. But then they don't have anything to make any of your own music and I just think then I have to write it myself.

M: Hmm

P: That's why I like my keyboard so it can be like (tap sound).

M: Cool. Ok I give you the next. If you click on real live sound, soundscape.

P: Yeah soundscape.

M: Then you get this.

P: Cool.

M: Do you know what a tutorial is?

P: No.

M: That's a little course. So it's like a little course you can do on this website.

P: Oh cool. So like a test?

M: Umm no. It's just a course.

P: Like a quiz then?

M: Like a lesson.

P: You could have quizzes I think quizzes would be cool.

M: Yeah?

P: Yeah like little quizzes but you can choose if you want to do them and stuff like on the sounds. I'd go easy (laughter). How to - so this would tell you like is this like a lessons, loads of little lessons on how to do it?

M: Mhm.

P: And then like once you've learned to do it can you just like do it? Advanced - I'd need to get a long way before I could be at advance (laughs). Sound walk - how to recording, radio interview. Oh radio interview! We've done that before in Geography or something but about soundscape music? That is well cool. Hello, welcome to my radio

interview about soundscape music (laughs). Like could you do that into a microphone without a computer? Or just like yeah -

M: I think so! (laughs)

P: If you have, I think if you have web-cam you should like be able to have like a picture of yourself doing it and maybe send it to people and stuff. Or like save it into your own documents and then send it to people, 'cause that would be fun (laughter). Or put it on Youtube or something.

M: Cool yeah.

P: I'm obsessed with sending stuff to people even though I don't have MSN but I have email so. (Reads) Log in, log off - so would you have like a password in this?

M: Mhm.

P: Yeah and a user name? Most things have that don't they? I read this magazine that's like that's where I got it from this password log in thing it's like gosupermodel.com. So I went on it and you got to make your own model and everything. Oh that'd be well cool you should make your own musical character and like they could be doing classical or pop or hip hop and they could like have the outfit for that type of music sort of thing and like then you just like log in as that person. That'd be well cool or you could change them.

M: Oh yeah that's an idea I didn't (29:37 Not understood word) that's a great idea. Cool.

P: I sort of just like nicked that other website and changed it into music (laughs). Yeah I'd love to do this, this would be well fun.

M: Ok we can do actually of that the first thing, the sound walk. So we click on sound walk and we get this.

P: Ok (30:08 Not understood word) sound walk, play. Put your headphones on and listen, should I do it? Oh cool. What do you have to guess what it is?

M: Uhh no you can just listen if you want to.

P: I think you should have like a thing like a little post ring like post your views on the sound walk something like that.

M: Mhm.

P: 'Cause then like you know - can I listen?

M: So you can listen if you want to so you can press play and you can adjust the volume here if you - the volume you can adjust here. Not that I blow your ears away.

P: I like this. It's cool. Like listening to anything. Are they opening doors and closing them with keys and stuff. It sounds like it's going through your head! That's well cool. It feels like you're actually there, it does. 'Cause it's like go through straight for your head. It's so nice, relaxing. It's just like you're walking through a street or something and

you're listening to it all. I think you should have like loads of different sound walks, like a spooky one, and - yeah. It's like you're outside though and the winds blowing and everything. I just love it it's so cool. This is a well good idea. Could you do it yourself like 'cause you put all the sounds into the computer will it be like on the website to be able to you know put it like, make your own soundwalk and then yeah, that would be cool. It's spooky now! (laughs). Have you done that thing where you put like one sound in one ear and it goes through the other ear? 'Cause that makes it better.

M: Yeah.

P: I want one of these at home. Like I want some sound walks (laughter). They're cool. It's like well weird. 'Cause at school we do like this music program called All Generator and we got to like put all our own things in it like drum kit and everything but then this is so much better. School's just giving us rubbish stuff. And luckily the school will never know.

M: Is it finished?

P: Yeah.

M: Ok. Ok cool.

P: Oh that's so weird now.

M: What is weird now?

P: It's weird it's like take them off and then there's no one. It's quiet. Well I liked it before.

M: Yah?

P: Yeah.

M: Brilliant.

P: You should definitely do that.

M: Ok so what can you also do on this website then?

P: Umm (reads) show texts - will it tell you a bit about the sound walk if you press that?

M: Uh yeah, if you press that then you get this.

P: Oh I see! Very clever.

M: (laughs) It's paper so it doesn't work to have a link there.

P: (Reads text) Soundscape composition is a piece of music that contains only real live sound: the sound of a car or human voices or a sound of a bird, these can be musical material as well as sounds of doors or water or weather. To train their ears and to get new ideas many composers are doing sound walks. This means they are going for walks and listening achievingly to all sounds that occur. Most composers record their sound walks so it - where am I?

M: It doesn't matter.

P: They said this on the thing though didn't they?

M: Yah.

P: Yeah that's cool 'cause then it's like some of my friends wouldn't want to read it. They couldn't be bothered. I like this it's well good. This is so cool. I want to do one of these.

M: (laughs).

P: Have a list on the top of every page so everyone like knows what your website is like good 'cause in the corner you're gonna hyperlink all of these right?

M: Yah.

P: I got told once for hyperlinking my project ideas. The teacher told me, no, you're not allowed to hyperlink it and so I had to take every single hyperlink off it took me forever. I was like ugh. Get rid of hyperlink, edit the hyperlink.

M: Hmm

P: So did my friends 'cause that's what - we got taught that in primary school and then we got told off in Secondary school. She's like you'll learn that we you get older.

M: Oh no I hate those things.

P: It was like if we've already learned it why do we have to get rid of it? It's not very fair is it?

M: Hmm

P: If I already know something and then get it out of your head then (laughs)

M; Yah. Hmm. No. Another page?

P: Yeah ok.

M: Ok so we go back now to the tutorial back to the beginning to this page, this is on the second page and we click now on theory.

P: Theory.

M: And then you get - where is it - theory and

P: (Gasps) sorry that's just a cool picture.

M: Ok what is this about?

P: This is (reads) click on any object in this room.

M: Do you know the general topic of this page?

P: Umm would you just be like say if you click on that ear hiding behind the curtain and that little speaker will it tell how the sound travels or something? Like do you know what I mean?

M: Well done so it's about listening the whole - so here you can see the highlight. Did you see that, that word?

P: Yeah

M: Yeah ok. Uhm ok you can click on anything at the moment what is black. So either on the curtain or on the loudspeaker.

P: Uhm the loudspeaker.

M: So uhm you get the text then a little text uh this one and it comes up so the idea - this is the wrong text now but the idea is that it comes up like on the floor so it sort of goes away.

P: Oh that looks good.

M: And uh but this is the wrong text so you get it now in this format which is not very much the same. So just read it.

P: Ok.

M: You don't have to read loud you just read it.

P: I think that's good 'cause like you've explained the words.

M: Mhm?

P: And then like so we'd understand it 'cause I wouldn't understand it 'cause I'm kind of a (39:58 Not understood word)

M: (laughs) So can - do you know what it is yet now the spatialisation?

P: Yeah like uhm sound goes like everywhere and moves around everywhere so it's separated all out in anywhere and then it goes to your ear.

M: Brilliant. Now you can click on the curtain and you get this little thing. It's not the whole text on there 'causes we were too lazy to write so you - but you know how it works and this is the text then.

P: Ok.

M: What do you think?

P: Well I think that it's so good 'cause you explain - you added like an extra fact in about Py -

M: Pythagoras.

P: Pythagoras yeah, the mathematician and you told like a whole story about him 'cause like that's (42:15 Not understood word) sort of thing. 'Cause like I didn't actually know that (laughs). I didn't so I thought of that sort of thing and like hiding behind - does that mean like hiding behind the curtain you like you don't have be able to see the music sort of thing, you just like listen with your ears.

M: Yeah.

P: Yeah. Well I think you explain everything really good.

M: Oh thank you. You understand very good (laughs). So ah that was it, well done, thank you. That was very good. Uhm I have now some basic questions. Just a few things.

42:55

Transcript: Motje Wolf
After questionnaire:

M: Two questions left.

P: ok

M: You can't do anything wrong. So just... Can you explain me, what a soundwalk is?

P: a soundwalk?

M: ja

P: Is it like say you walking... so it's like you're walking passed all the sounds and they were just like you know... come into your head and that sort of thing... So say you're walking down the street like it's like you're listening... it's just like you're walking down the street so you here all the sounds of the street...

M: hm

P: is that a soundwalk?

M: Okay. And what is acousmatic listening?

P: uhm, isn't, is that, is that when you are behind the curtain?

M: ja

P: ja? And like say, say you can't see what you're hearing... so you're just like listening to it. It's that what music is though, isn't it?

M: Brilliant, thank you very much, well done.

Interview 4

P4/1

Interview: Motje Wolf

Transcript Jeffrey Mettlewsky

P: So I might have a list of instruments with pictures of the instruments by them so you have like a picture of a guitar.

M: Ah okay I can see what it is.

P: And you'll think - yeah. And then you could have things on modern music so like the charts. You could have music videos on it. You could have different pages for beginners and advanced players. And then theory.

M: Is that music theory or theory of the guitar what you put?

P: Uh things like frets and yeah

M: Ah

P: And on piano it would be theory of key signatures and - I spelled beginning wrong! (laughs).

M: No problem, spelling doesn't count or matter.

P: And could I -

M: Yah

P: These are the web pages. And can I just like fill them out?

M: Mhm you can do everything.

P: And you could have like a box saying uhm did you know and it has lots of interesting facts in it? Then uh you could have a course. So you could have uh lots of little boxes and they could have things written on them like C uhm major C sharp, D et cetra. And then you click on in it and it would show where it was on the piano. You could just have a picture or something. And then uh yeah. Then you could click on uhm composer and it would tell you about the composer. Ah

M: You have some time left if you want to.

P: Oh and you could have a place where like uhm a thing where you can compose your own music. You could uhm, have uh you could have it split and on one side you could like uh record, play music using your computer. So like the keys on your keyboard, uhm if you clicked on it it would play a note and you could record that. And the felt would be colourful but I might do that later in be like set time. And then so yeah you'd play the keyboard -

M: Mhm

P: And you could set time and there'd be like uhm a metronome so it'd be like 'tick tick'.

M: Mhm

P: So you can keep in time when you play. Yeah and you could uhm send in there could be like a music blog and so you send in your music and people will rate it.

M: Ah ok.

P: And so you could record your own music or do it on the actual website. And you could uh download music from uh Youtube. And then it would have a box with http and then you'd write in the url and then yeah. And you have it play with this button these. And then you could click on the stars to um and then they'd have get colour in them become coloured and then yeah that's how you'd rate the um song. You wouldn't be like a teacher telling you what to do 'cause it wouldn't - and also on the actual.

M: So how would it do that? Not like a teacher it means what?

P: Uh you wouldn't like give- make them keep to a time.

M: Mhm.

P: And you could uhm have videos of people showing you how to do it. So you could have people actually teaching the uhm those videos. So uh you could have uhm like a video lesson.

M: Mhm.

P: And then it would be like uh volume one and volume two and so on.

M: Mhm.

P: And then yeah volume one could be cool something like beginning and getting started.

M: Mhm.

P: Then yeah I think that's about it I'm done.

M: Ok yah, do you want to add some colour or do you want to leave it like that?

P: Yeah okay. It's not much.

M: Oh don't worry just uh I guess do so we can see it.

P: You could have the instrument like uhm, you could have lots of little icons of the instruments all instruments like swirling around like a 3D kind of thing.

M: Mhm.

P: Like going- yeah oscillating. I can't 'member though how to do-

M: It doesn't matter I know what you mean.

P: There - colour this some. And you could like uh you might even - you could have a page - well you could have like uhm on the - when you get on a page about the instruments (oh thanks) uh you could have a part saying uh like related links or places where you could buy a piano or something.

M: Mhm.

P: Yeah related link and other piano websites on the piano. And then it could list all the different websites you could go on.

M: Okay.

P: You could have a quiz.

M: Oh yeah we got one going (laughs).

P: You have a yeah music quiz and piano quiz. And you could keep it in like a young language, so it's like replace 's' with 'z' and stuff like that 'cause it's like cool.

M: Cool things ok yeah.

P: QUIZEZ. So you'll have like a key signature quiz and like test your key signatures. Uhm yeah and like -

M: Ok you are very very creative that's really really cool but I have not so much time and I don't want you to sit the whole evening. But if you have anything more to add and you just think overnight or what you just let me know in the next rehearsal. Yeah? It's really really cool. So much stuff. Brilliant. Well done. How do you feel are you a bit exhausted? Is everything okay?

P: Okay yeah it's great.

M: Okay cool we have two parts left. The next part is I want to show you some pictures my colleagues have done. And uhm just ask you a few questions about that. And uhm after that I just ask you some general questions like how old are you and all that stuff. Uh make I have that? Brilliant so much- cool. Let's put that here. Ah well I give you this. Just have a look and tell me what this what you think is this website is about.

P: Ok it's a bit comp- uh I'm not sure if everybody knows what 'pecla' or ped-a-gog-ical electroacoustic resources site. It sounds cool it's just like hard to pronounce (laughs). You could call it you could uhm shorten it like oh PEAR. It's like P-E-A-R yeah that's good. (Reads) Music, Technology, Innovation Research at De Montfort University, Electroacoustic. Understand music. Listen to music. Make music. Yeah, yeah that's good. And yeah you could uh more pictures of like instruments and things like yeah.

M: What do you think is behind these words?

P: Uhm the you know understanding music would be things like theory and uh maybe a bit about the composers and uh how to play an instrument 'cause it like some instruments it's like very difficult how to learn like how to play them. Like flute you have to like uh get it the fingering and everything. And yeah like listening to music could have the top charts and other music that could be posted by other people on who go on the website. And yeah making music would be good and then yeah, composing and

recording music maybe. And then about uhm EARS - oh yeah. Although I thought pears and it's like (laughs). Uh yeah it tells you about the website and helps you search it. Uh yeah searching maybe search for instrument information on instruments and stuff like that. And login makes me think that uh people would be maybe have their own profiles on the uh EARS. And then yeah curriculum would be what's happening throughout the year but I'm not really sure about that.

M: Yeah it's okay, it's alright. No problem. Ok I give you the next pic. If you clicked on understand then you get this (maybe it's easier for you to have one single page). And the same question again what do you think is this website about and what do you think can you do on this website?

P: It could be about the- it's about the history maybe. It has a timeline at the bottom. History of music and then so all different types music. Yeah but that might be wrong. Telling you about the- all the different types of music. Yeah new electrical instruments I think. Oh yeah, sound manipulation so it could be like a pitch bend on a keyboard or something of different effects you could do. Yeah theory uh yeah telling you about key signatures.

M: Mhm.

P: (continues) Uh time signatures and maybe scales and arpeggios and those different things. And well I play the drums and drums has lots of effects like things called flams and like that yeah. Uh how do we listen to music that's good. Yeah you could read a- learn to read a score. Oh listen, yeah so you could yeah so listening to music like modern music or any type of music actually. And then uh making your own music would be uhm like the one over here, like composing music, record it. And then search so I don't- well searching you could yeah maybe you could find lots of information on a particular subject. You could like type in a composer or an instrument or a word like C major and maybe it will tell you about the key signature of C major.

M: Can you do anything else?

P: Uh so exploring through the website or uh so it's games, like music games yeah that's good.

M: Anything to add?

P: And yeah you have the parts at the top saying you can go back to where you were before and yeah that's easy.

M: Okay if you click now on music and then on real live sound which is left of the circle here you get this website. Same question again what is this website about and what can you do on this website?

P: I can see it's all uhm- it looks like a website (laughs).

M: Good!

P: Soundscape oh cool. Concrete, that's french.

M: Mhm

P: Hip Hop, New York. So it's all the (25:20 Not understood mumbling) it's about uhm diifferent styles and styles of music-

M: Mhm

P: And ways of doing music and "musique concrete", Pierre Schaeff-, music with trains and planes and uh I'm not really sure about that.

M: No that's no problem.

P: So it's uhm music with trains and planes so it's like uhm on the subject of trains and planes or?

M: I can answer you every question at the end uhm when we finish but uhm because if I answer you now the question you know it uhm. For me it's just important to see if you can get it, if not then read it on the site so (laughs).

P: It says ugh trains and planes so hmm?

M: Ok doesn't matter, doesn't matter. Do you want the next page?

P: Uhm and uh recording yeah, record. Oh so it's music musique con-

M: Concrete.

P: Concrete is a type of music.

M: Mhm

P: So you have like different- the times about the time and it will tell you about yeah tell you about the musique concrete.

M: Yeah good. If you click now on soundscape again, uh not again but (27:00 not understood mumbling) then you get this. Do you know what a tutorial is?

P: Uh yeah we take them. That's one of our subjects at school.

M: Ok so I mean it's a little course you can do. So uhm-

P: I can't make out what the- in the yellow.

M: Oh that means easy medium and advanced, that's a bit hard to read with the light.

P: (Reads) Soundwalk, how to recording, radio interview about soundscape, Hildegard Westerkamp. Oh is that? I know I was asking but uhm-

M: No no ask, it's okay. I just say so you can say that so you would not.

P: Hildegard Westerkamp uhm is that a composer?

M: Mhm.

P: Yeah (reads) soundscape further knowledge. So you'll have some extra knowledge at the end for people who've like done most of the- know all of the normal- the average things like extend their musical knowledge.

M: (Laughs).

P: Soundwalk so that's like uhm looking at all the different types of sounds and maybe different genres of music. And maybe picking an instrument if you wanted to know what instrument you wanted to learn to play. And then recording so how to record your music. So maybe using uhm the cassette tape player that you own.

M: (Laughs) Yah.

P: And yeah get different instruments and stuff like that. Radio interview about- so uhm your- do you play a thing about people speaking to you telling you about soundscape music? So I'm guessing that soundscape is another- is a whole genre. Oh soundwalk is listening to all the uhm aspects of soundscape music. So different- maybe different composer, different songs. Ok yeah I think I- yeah I get this. So radio interview about a genre of music and Hildegard Westerkamp is a composer of Soundscape music.

M: Well done, that's really good. Ah if you click on soundwalk you get this. And for that I have a bit to listen for you. Oh yeah you may do everything (laughs), no problem. You can read it but you can also get it here. So I give you the headphones. You can adjust the volume here. It's very quiet at the beginning so maybe don't start it too- ok and it starts.

P: Yeah it's really good. Uhm he's speaking quite slow and it's helping me like take in all the information. And yeah I like that the music's playing in the background and then giving examples of the music during the interview. It's really good. Yeah it creates really good atmosphere, it's like I can't really think of any criticisms, it's really good.

M: Okay (laughs). Last page now, uh we go back to the beginning, click on understanding. Maybe we can- I can show you the way and then actually know that so are still on understanding but we are going now to theory. Yeah just to theory and now you get another page. Just it's- oops this one. Uhm, what is this website about and what can you do on this website?

P: So yeah you can click on things in the room.

M: Mhm.

P: Presumably he'd tell you about it. Yeah alright click on any object-

M: (laughs) Good!

P: And yeah-

M: Do you know the topic?

P: Things like hiding behind the curtains-

M: Hmm

P: Makes it much more interesting.

M: Do you know what kind of information do you get if you click on an object?

P: So maybe it will tell- if I had clicked on the speaker it will tell you maybe how a speaker works and what type of speakers you should use or- for a guitar you could use like a type of amps. They could tell you about recommended amplifiers and stuff like that.

M: Okay if you click on the loudspeakers then you get the text, which is coming like that- yeah like that. You get it in a written way that you can read it better. Just read it for you, just take your time. Oh sorry, oh sorry, you don't click on the loudspeakers, you click on the curtain. I'm so sorry.

P: Okay.

M: Oh I did that wrong. Oh no.

P: That's fine. Pythagoros' theorem.

M: This is the same.

P: Oh sorry.

M: Yeah it's (37:01 Not understood word). Do you- are you ready soon?

P: Uh yeah.

M: Do you understand what I am talking about then?

P: Yeah that's uhm yeah that's really interesting. Some young people wouldn't understand. I don't think that some young people would understand what stimulus means or- yeah.

M: What what means?

P: Yeah stimulus. I know what it means but uh-

M: Okay. And if you click now on the loudspeaker you get another. So this is this time really the loudspeakers (laughs).

P: Spat-ialisation.

M: Spatialisation. No problem, no problem I just give you some information.

P: Yeah it looks a bit weird doesn't it? Uh yeah I understand that good. Yeah it sounds like it's like going from left to right or down and up. Yeah it's good how they represent it by (39:26 Not understood word) the mix and stuff like that. Yeah and give you examples.

M: Do you think this is interesting?

P: Uh yeah, yeah.

M: If you don't think that it's fine (laughs).

P: Put it- you could like have it in different type or like changing the words and make it like more interesting like.

M: Mhm.

P: And make some words bigger than others.

M: Mhm mhm. Okay cool. Well done that was really, really good. Thank you for so much good things you said. I have just now the questions left...

Transcription Motje:

M: two questions left: Can you say me what a soundwalk is?

P: A soundwalk... it's a laughs

M: laughs I'm mean, I know

P: Examination...

M: laughs. You can't do anything wrong, because if you're wrong then I know that I have to change some things, so it's no problem

P: (sighs) Is it is where they compose (not understood) like walking and recording different sounds to make into music by modern normal everyday sounds... turn it into a piece of music...

M: mhm, brilliant. And what is a- acoustimatic listening?

P: It's ... Pythagoras... a group with Pythagoras, is does two groups and also ... mathematic, mathematic dedes (he didn't know and just said the number of syllables), with uhm people who uhm do mathamaticians, like people doing maths... and it was... uhm ah uhm (...) I don't know. I should have concentrated more on that bit.

Test Phase 2, P1

22/03/2009

Interview start { _time}29.28{/ _time}

Start page

- lots and lots of words

- understands the general design of page

Tutorial "What is electroacoustic music"

{ _time}86.08{/ _time}

{ _time}205.56{/ _time}

not really thinking that Beatles is music. Method of valuing - singing more like speaking.

{ _time}219.12{/ _time}

It's quite hard because the singing is sort of not exactly singing, because they don't really change the note that much. And it's, it's sort of more like speaking... {DefinitionMusic}But it is sort of a kind of music, because they're creating sounds as well. So I think it is music.{/DefinitionMusic} { _time}237.96{/ _time}

{firstreactiontoeamusic}During Gilles Gobeil's piece: That is scary.{/firstreactiontoeamusic}

{ _time}315.16{/ _time} Ok uhm, yes

{firstreactiontoeamusic>positive}I think you're hearing it on films, when people are doing stuff, it's like sound effects. And I think it's really scary. But it is like life light 'cause when people in movies are doing this or on TV it's not actually sort of their, they have to act and then they put it in and it works really it's they can time it, so it's exactly in time with the movements and stuff. I think that's really clever.{/firstreactiontoeamusic>positive}

M: mmh.

{DefinitionMusic}P: And they sort of, I think they're like artificial sounds, well I've seen them on uhm, on uhm I'm doing it in music and it's

acutally sounds and they sound artificial, but they sound like birds and stuff. So it's clever how they can use artificial sounds and real sounds and mix them together to make really cool effects.

It's not exactly music, because it's sort of... it's sort of, it's sort of music is intended to do something like, well it is music in a ... way, but it's not like ordinary music, 'cause music is intended to like make people feel differently, like happy or sad and it's meant to sort of go with people's what people like to do and stuff. And it sort of isn't . It's sort of helping to describe a scene or something. It's sort of is a type of music, but it's not in a way

M. Mh

P: There are certain parts of it that maybe are music. Like maybe drums or people singing mixed with sound effects. ... I can understand why people think that is not music. ... 'cause it's a bit confusing.

{ChallengingTermMusic}{DefinitionMusic}

What is music? Music is uhm something that people ... make by using anything really, like their voice or just a table (?) or something and it's described how they're feeling or how they wnat other people to feel... and stuff like

that.

Then problem with sound organised in time, confusion about how it was written line by line.
not important.

{ChallengingTermMusic}

you can hear the different pitches, but they're sort of... it's weird calling them pitches, because they're some sort of low, there're sort of dark sort of sounds and there're really high ones, and they are differnet pitches, but you would not really think of them as pitches...

and the rhythm, well maybe certain parts of it have a rhythm like repetetive or something, bt then other parts don't really. So they are sort of seperated.

M: mmh

P in different sort of bits.

{/ChallengingTermMusic}

{DefinitionMusic}P what is different about the music that I just heard

M: ja

P ok, well it's sort of ... it's different because it isn't really, it's not like usual, it's not like usual music, where there's like a voice in it or some kind of instruments or some sound, it's more like something like to go with an action to emphasize it more. It's not really used, it is used to make an effect, like you're more scared or sad or happy, but it's not like it can't just be listen to it by itself, it needs something else with it sort of just to give it more a picture like with a sort of moving picture it would help you understand sort of what it meant or it just to help you like what does this bit mean, and this bit. So it is different, because it's not like usual music. {/_time}710.68{/ _time} {/DefinitionMusic}

{TermElectroacoustic}{/_time}757.96{/ _time}I think it's a good word for it because if it's if it's mostly powered by electricity it powered by electricity it has the electro bit in it and then acoustic, acoustic it's like sounds and stuff. So it does describe it really well. {/_time}774.44{/ _time} {/TermElectroacoustic}

{/_time}848.52{/ _time} start quiz

question 1 no problem.

"quite a good way of confusing people"

Questions 2 {/_time}977.20{/ _time}
understood.

Question 3 no problem

went to tutorial soundscape

Hil< {/_time}1261.28{/ _time} Hildegard Westerkamp page

{/_time}1291.64{/ _time}

question 4

{/_time}1362.32{/ _time} hip hop sample

P: Yeah (after first train)

that's well cool, clever {/_time}1398.84{/ _time}

question 5 {/_time}1619.24{/ _time}

question 6{ _time}1704.16{/ _time}

{ChallengingTermMusic}{DefinitionMusic}{Tutorial>MusiqueConcrète}{ _time}1817.80{/ _time}

It is a train, but it couldn't be that sound if there weren't other sounds involved in it, because if say something wasn't working on the train, didn't make the sound go, then it wouldn't really sound like a train, in a way, if you know what I mean

M: mmh

There are lot's of different components that make the sound like that. [...] But you can also hear different sounds in it. Like if you take out the tsch tsch tsch bit it could sound like any sort of big thing really like an aeroplane or I don't know a boat or something really sort of these engines sort of gettin powered up or so.

M: But do you think it could be music? { _time}1860.40{/ _time}

P: If it.. it could be ... well it, it could be music, because it's a sound ... and it makes you sort of feel or think about something. So I think it could be music, but and it would make it more of a musical thing if it was like in like this DJ thing, if it was incorporated with that. Or if it was like in an orchestra and they added sort of sounds like that or a ... like a car or a bus, then I think it is music, just in a different form.

{ _time}1895.84{/ _time}{/Tutorial>MusiqueConcrète}{/DefinitionMusic}{/ChallengingTermMusic}

After reading the last bit of the reduced listening page:

{Tutorial>MusiqueConcrète}{ _time}1953.28{/ _time}

So if you sort of ... It is a piece of music, because it has a rhythm to it, it does have a certain pitch, has different textures. And if you just focus on one part of it or, or different parts of it, then it's called reduced listening, because you're not listening to the whole thing.{ _time}1974.52{/ _time}{/Tutorial>MusiqueConcrète}

Who am I - Pierre Schaeffer question: { _time}2068.48{/ _time}

{ _time}2128.72{/ _time} How many can you listen to the music

question?

{_time}2394.36{/_time} next question

Participant struggled because she didn't think of the word hip-hop.
%this comes out of the blue, while all other questions are kind of connected with each other.

{_time}2699.08{/_time} test over

{GeneralOpinion}Overall opinoin:

{_time}2707.36{/_time}

I thought the information that you gave was good because i wasn't like over complicating and there were easy sentences to understand. But maybe some more information you could have done famous people or people that or certain like maybe a small paragraph about each type of music. You know, like hip hop and then uhm I don't know.

M: ja

{_time}2733.32{/_time}

{/GeneralOpinion}

{GeneralOpinion}Referring to the pictures:

"That was a lot more interesting and I preferred that to this."

{_time}2804.16{/_time}The word and everything is really good, because it is not too boring and not too complicated{ _time}2809.48{/_time}

{_time}2830.04{/_time}

P1: 'Cause these... the Wiki Website is quite sort of plain and everything.

M: ja

P1: So if you did also pictures, maybe like some ... I love the cartoon and the drawings you had

M: ja

P1: They were really good, I think you should add them

M: OK, good. ... I've just one last question: Did you enjoy doing that

P1: This? uhm ja, apart from the last question

M: laughs

P1: Because I got lost

M: Because you got lost, ja.

P1: ja. But I think, it's good, because I did have a sort of an idea about it

and then you can search it, so it gave you it gave you the amount of information you could rather than just using it of your own knowledge, you could go and find it somewhere else.

{_time}2873.36{/_time}

{/GeneralOpinion}

Test Phase 2, P2

{_time}62.44{/_time}
test start

Tutorial What is electroacoustic music?
sure first track is music
went straight from one example to the next, without reading in between
(maybe he read on during listening, because he looked at the screen)
{_time}247.56{/_time} listening to Gobeil.

just before this time: {_time}260.00{/_time} "cool" (Which is his first
reaction to ea music)

{_time}362.92{/_time} listening to Gobeil second time
{firstreactiontoeamusic>positive}{_time}385.56{/_time}
"I quite like that."

{_time}397.88{/_time}
"I like the end it's kind of spooky but ... no I can't (scratches head)...
it's spooky basically." {_time}409.44{/_time}
{/firstreactiontoeamusic>positive}

{TermElectroacoustic}{_time}437.08{/_time} I would call it
electroacoustic music. {_time}440.32{/_time}{/TermElectroacoustic}

{_time}506.56{/_time} starts quiz
question 1 - correct
question 2 - "never heard of that"

works quietly through the questions.

listens to train study (Schaeffer)
{_time}1156.36{/_time}
{_time}1172.96{/_time} it has a beat there {_time}1178.08{/_time}

{Tutorial>MusiqueConcrète}{_time}1203.52{/_time} reduced listening training

After listening to train sample for the first time on this page:

{_time}1212.64{/_time} ok forgetting that this is a train, you can hear the beat. And in a way there is a tune there dd dd

{_time}1227.32{/_time}

{_time}1233.52{/_time}

And you have the low pitch, like a bass, and then the beat which is slightly higher. (Gesture: indicates different layers)

{_time}1240.04{/_time}

{_time}1248.48{/_time} the rhythm is quite fast, and the sample is quite short, but if you play it over and over again, it could be quite long.

{_time}1258.28{/_time}

{_time}1271.52{/_time}

P: what do you mean like 'intense'?

M: Uhm, ... how much... how much does this affect you?

P: Quite a lot I think, it makes you wanna listen. it's quite, it's a lot going on. {_time}1303.76{/_time}

{_time}1333.32{/_time} Schaeffer tutorial

{/Tutorial>MusiqueConcrète}

{_time}1572.84{/_time}

He then did the all of the Musique concrete tutorial.

{GeneralOpinion}

{_time}1778.92{/_time}

I suppose if youre watching, if your watching the the music you might just get a bit bored just seeing speakers,

M: mh

P. so sometimes you go to music festivals to see the people perform.

{_time}1809.60{/_time}{/GeneralOpinion}

{_time}1828.20{/_time} hint H Westerkamp

"ah I forgot her name"

found out by clicking back {_time}1886.68{/_time}

%in total, quiet, concentrated atmosphere. Other than bubbly P1.

remembered the answers for the questions.

Got confused with question ten too.

It involved to use the search function, that was basically what the participants did not realise.

After tip with `{_time}2265.52{/_time}` search function, answer was found without problem. `{_time}2299.00{/_time}`

`{_time}2309.00{/_time}`

M: How do you feel?

P; Quite good, it's a good website.

M: Oh, thank you (laughs) Ja, that would be my next question, just two or three questions. Did you, did you enjoy doing that?

`{DefinitionMusic}``{ChallengingTermMusic}`P. Mhh (nods) It's quite interesting learning about how sounds can be music.

M: Mh... and do you think it's music?

P. (thinks) if it has a beat and a little bit of a tune, then yeah. So... part of it is, I think. But the train, I think that was good, because it had a rhythm to it, the (taps the train rhythm on

table)`{_time}2360.48{/_time}``{/ChallengingTermMusic}``{/DefinitionMusic}`

Test Phase 2, P3

{_time}133.26{/_time} start tutorial What is electroacoustic music
% feel the excerpt is to long

after first example "definitely music"
Beatles example
"sounds very electronic, but it's still music."

Gilles Gobeil example

{ChallengingTermMusic}{DefinitionMusic}%no different movement of
head, same concentration? Staring on screen

{_time}304.73{/_time} Û {_time}317.49{/_time}

{firstreactiontoeamusic>positive}"Don't know if I heard anything like
that before. ... It's quite cool though. ...

{/firstreactiontoeamusic>positive}

(reading and responding to that:) Although people probably don't think
that it's music, because... it's most, it's all... done by the computer.

Normally music is made by instruments. ... (reading)

{_time}355.84{/_time}

listening to first example again.

{_time}397.24{/_time}

{_time}416.98{/_time}

It's music, but even though it's not made by instruments, but... it's just
because it's sounds made electronically so gonna be why people think
it's not music, 'cause it's not organised, has different pitches...

{_time}450.98{/_time}

{/DefinitionMusic}{/ChallengingTermMusic}{_time}488.94{/_time}

{TermElectroacoustic}Electroacoustic... I think that's quite a fitting
name, since it its electric. {_time}514.36{/_time}

{/TermElectroacoustic}

Questions 1 and 2 no problem

Question 3 {_time}620.90{/_time}

{_time}635.59{/_time}Listened to kits beach sound walk

{_time}654.46{/_time}

She ended the track before the voice came in, so she had not the full

experience of this soundwalk.

{_time}672.47{/_time}

P: So I assume that will be the electroacoustic

M: no

P: hm that's confusing

M: What is confusing?

P: It doesn't give much hint on how to answer it.

M: mhm

P: So I'm not sure. (lots of silence, p is staring on the screen without doing anything)

Ja, I don't know.

M: OK, nobody expects you to know that, ja? Nobody knows that.

Uhm, there are hints and you can follow the hints and you will find an answer uhm, if not, I'll tell you.

P: ok

M: and again, blue things are links and you can click at them.

P. starts clicking again. reads information on Hildegard Westerkamp page

{_time}856.49{/_time}Aha, soundscape

M: Well done.

{_time}859.21{/_time}

Next question: not sure but I give it a guess

P: Hildegard Westerkamp

M: Well done.

Next question:

P: That's quite easy

%but then guesses ("Either b or d")

{_time}1015.92{/_time}

{_time}1027.66{/_time}

Interesting though, thinking where the music comes from.{_time}1032.84{/_time}

{_time}1051.78{/_time}

Schaeffer Piece

{_time}1076.88{/_time}

She guessed Musique concrète.

Question 8 About a special name of electroacoustic

Confusion about the question. She did not see that she had to search for Pierre Schaeffer's name too.

%she had some difficulties with the questions, but not with the content.

{_time}1189.13{/_time}

{_time}1296.17{/_time} reminder to think loud.

Could not find the answer to question 10.

{_time}1401.86{/_time}

tip to listen to the piece

Did that and listened quite long to it. Until I stopped her.

{_time}1514.32{/_time}

Tip to look at the website to find something that could help her. But she did not find the search function. She instead went over the home page to hip hop and found the answer that way.

%She did not do the listening training.

{_time}1600.52{/_time}

After the quiz:

{_time}1603.44{/_time}

M How do you feel now? How do you feel?

Uhm , some of them were quite confusing?

M: Which one?

P: Most of the "who am I" ones.

M: mh

P: The multiple choice questions were good because you just had to

choose the most likely from four choices. {_time}1623.08{/_time}

M: mhm

P: It was harder having to look around.

M: What was hard?

P: It was harder having to go to the hints and

mh

having to look around more.

M: Ok. And uhm, what do you think about the sound examples? You... what I saw is that you stopped them very quickly... that was alright, so no problem, but why did you do that?

P: Uhm it was just uhm I heard enough. I reckon I heard enough of the sample to get a good idea.... of what it was.

M

mh

M: And there were sometimes pages where there were uhm. Do you remember one page there were three examples, it was about musique concrète (P: yea) and you clicked away after you found the name Pierre Schaeffer. Why didn't you do or what would have made you doing the whole website... the whole site.

P: Uhm... maybe I thought maybe I could, I might be able to find more information on there.

M: I thought, and this was my thought, that if I give you a link on this website to this, to this page that you would do everything on the website (P: OK), now you didn't do that, that was fine, but what would I have to change that you would do that.

P: Uhm, maybe you could have little hints saying uhm make sure you click around (M: mhmh) find out what you can.

M. Ja, ok. And uhm I had another question... {DefinitionMusic}What do you think did you learn on the website in this time now?

P: I learned about the electroacoustic how music doesn't isn't just like orchestras and stuff. {/DefinitionMusic}

M: mh

P: And I heard lots of examples of real-world sounds.

M: OK

{_time}1755.36{/_time}

{Tutorial>MusiqueConcrète}Tutorial Reduced listening

{_time}1787.40{/_time}

{_time}1825.26{/_time}
after hip hop sample has finished
"That's very good for a first original sample."
{_time}1877.38{/_time}

Yeah it does the higher and lower actually

It's not a very fast rhythm, but medium {_time}2032.62{/_time}

There's about two layers, there the train, there might be three the wind,
there is the wheels and the track. {_time}2056.83{/_time}

It's strangely about... not thinking it's a train. {_time}2090.84{/_time}

{_time}2347.16{/_time}

I think it's quite brave to be experimental with all that.

...

It's quite interesting if you wanted to play around.

{_time}2443.64{/_time}
I did not know that there were four ways of listening.
{_time}2469.28{/_time}

[{/Tutorial>MusiqueConcrète}](#) {_time}2541.82{/_time}
That makes sense about concrete.
%Did she do the abstract vs concrete bit?

M: How did you like this tutorial?

P: It was quite interesting actually, finding all about why they did it and
the four ways of listening.

M And if you were me would you change something in the tutorial
(paraphrase)

P: No I think it's good

M: Ok, and what do you think now about this music?

[{/DefinitionMusic}](#) [{/GeneralOpinion}](#) P: It's really fascinating actually how,
it's just everyday sounds its like dogs or trains and they can turn it into

something that has gone on the
radio. {/GeneralOpinion}{/DefinitionMusic}

M: Would you use this website when it's finished?

P: Yea I probabaly would.

%less communication needed because she could use the website
independently as there were players installed now

Data of Test Phase 3

Questionnaire 1

Questionnaire 2

Listening Responses

Letters

Teacher Interviews

Lesson Plans

Sample Data

Overview Questionnaire 1

	CS01	CS02	CS03	CS04
age	12years = 15 13years = 2 no answer = 1	13years = 12 14years = 9	12 years = 9 13 years = 14 no answer = 2	12 years = 6 13 years = 17
Gender	Male = 9 Female = 9	Male = 9 Female = 12	Male = 13 Female = 12	Male = 11 Female = 12
Ethnic origin	3 Indian 4 Pakistan 1 Bangladeshi 4 Other Asia 2 White and Asian 4 White British	18 white british 2 Indian / British 1 prefer not to say	15 white British 6 Indian / British 2 White Irish / British 1 Pakistan / British	14 white British 8 Indian /British 1 prefer not to say
Favourite music	- soft solo classical music - RnB, pop, gospel&religious - pop - RnB, Hip hop, Basseline (sic) - baseline (sic) RnB, hiphop (sic) - Rock - RnB - pop music - pop music - RnB - RnB and Hip Hop - rock - hiphop	R'n B R'n B R'n B R'n B R'n B R'n B, Dubstep, pop, club, bassline R'n B, electronica	Alternative hip-hop, alternative rock, Guates Barkby, Gorillaz, The white scipes bass & drum classical don't mind drum and bass, rap dub step, RnB, Hip-Hop	blues and rock chart music chart music chart music chart music, RnB and Hip Hop Charts eminem / rap eminem, chiomunk, Jay-2, usher, black

	<p>- my favourite music is Rock - soft solo music. Instrumental (last word written by teacher) - RnB, Hip Hop, Pop - Hip-Hop/Rap - any</p>	<p>R'n B, michal (sic) Jackson R'n B, pop etc R'n B, pop etc Rap Rap, Rock Rock Rock, Metal</p>	<p>hip hop/rap kooks, g'lee, rhunna (pop/rock) (R'n'B, Rap) piano songs, pop, paradise pop pop pop pop pop music pop-classical pop, rap pop/ rock/ R&B R n B, rap, pop, 80's, rock R and B rap, bass RnB rock rock/rap</p>	<p>eyed peas, cheryl cole, (hip-hop, rap, pop) Eminem, Say-2, Chipmunk, Usher, Black eyed peas, The script. Cheryl Cole (Hip-Hop, Rap, Pop & Rock, RnB, mainly) Hip Hop / Rap Hip Hop / Rock / Grine James Morrison, Joshua Radin, - soft rock, pop-not rap!! Chart music; now 7s (CD) Jazz JLS JLS, Justin Beiber (sic), paramore Justin Bieber Justin Bieber, JLS, Lady Gaga, Glee Cast, Sean Kingston Pop Pop and rock R'n'B, Garage and base R&B rap, drum and bass</p>
--	---	---	--	---

			theatrical	rap/hiphop
Instru ment yes/no	No 14 Yes 2	No 13 Yes 8 Grades vary between 2 and 4	No 8 Yes 17 Grades vary between 1 and 5	No 9 Yes 13 No answer 1 Grades vary between 1 and 5
What do you like learni ng about music	<ul style="list-style-type: none"> - learning different instruments - different instruments - binary ternary form (sic) - different styles - different styles of music - its sound - ? (sic) - different styles and instruments - nothing - different styles - What interests me the most is the different styles - learning how to play instruments - composers - Instruments 	<p>Different styles and genres</p> <p>the beat</p> <p>I am interested by different composers, styles, played on pieces</p> <p>styles</p> <p>Style</p> <p>Duno</p> <p>the different styles</p> <p>different styles and instruments</p> <p>instruments & styles</p> <p>instruments & styles</p> <p>differnent styles</p> <p>different instruments</p> <p>I like to hear the rythm (sic)</p> <p>instruments & styles</p>	<p>?</p> <p>any style played on pieces</p> <p>random things</p> <p>difference styles (fun)</p> <p>different instruments</p> <p>different instruments about current singers</p> <p>different styles</p> <p>different styles</p> <p>different styles</p> <p>different styles</p> <p>different styles</p> <p>eminem</p> <p>If in fast, exciting (???)</p> <p>listening to music for most of the lessons</p> <p>musical scales (blues etc)</p> <p>pieces</p>	<p>Backing</p> <p>different styles</p> <p>different instruments</p> <p>different instruments</p> <p>different pieces</p> <p>different pieces</p> <p>different styles</p> <p>different styles</p> <p>different styles</p> <p>different styles</p> <p>different styles</p> <p>different styles</p> <p>different styles + differerent instruments</p> <p>different styles, different ways to sing</p> <p>don't know</p>

		/ The different styles different instruments styles different styles and composers styles	pieces playing the pieces rhythms and listening rythm (sic) rythm (sic), instruments sound/instruments and styles style and beats the way it sounds, if it is a nice piece of music and different styles to understand. what time the lesson finishes writing it writing it	fast pieces good music how I could put that style into a song not sure nothing really - I prefer to listen to music NOTHING!!! Styles the beat and the rythm (sic)
How experi enced in comp uter	1 = 0 2 = 0 3 = 5 3-4 = 4 4 = 2 4-5 = 2 5 = 4	1 = 0 2 = 0 3 = 5 3-4 = 2 4 = 6 4-5 = 1 5 = 7	1 = 0 2 = 0 2-3 = 1 3 = 4 3-4 = 1 4 = 12 4-5 = 0 5 = 7	1 = 0 2 = 0 2-3 = 1 3 = 6 3-4 = 1 4 = 12 4-5 = 2 5 = 1
How	<1 hour: 2	<1 hour: 4	<1 hour: 4	<1 hour: 0

many hours Internet per day	1-2 hours: 6 2-3 hours: 6 3-4 hours: 1 4-5 hours: 1 >5 hours: 1	1-2 hours: 4 2-3 hours: 1 3-4 hours: 5 4-5 hours: 4 >5 hours: 3	1-2 hours:6 2-3 hours: 7 3-4 hours: 5 4-5 hours: 1 >5 hours: 2	1-2 hours: 9 2-3 hours: 8 3-4 hours: 2 4-5 hours: 1 >5 hours: 0
Listen before	No: 9 Don't know: 4 Yes: 3	No: 16 Don't know: 5 Yes: 3	No: 15 Don't know: 5 Yes: 4	No 16 Don't know: 1 Yes 5
What's e/a music	- ? computer generated music music formed by electroacoustic (sic) instruments like electric guitars and sound nice. <ul style="list-style-type: none"> • Im (sic) not sure • don't know • never listened to it • music played by electrical instruments, eg. electrical guitar* • ? • ? • ? • computer generated music 	what do you think is e/a music dance, funk, singular tone guitar stuff sorry, no idea !! :P acoustic? electric music like elektric guitar like a guitar dont no acoustic + electronic music not sure dont no	what do you think is e/a music music made on the computer & without real instruments no idea different styles and sounds from different countries. kno idea (sic) sounds similar to those of electric guitar I'm not sure electric music? music that is already played by someone else but done again?? music that can be generated on	don't know Dunno Electric Instruments I don't know I don't know I don't know I don't know i dont know I have no idea I have no idea I have no idea I think electroacoustic music is the

	<ul style="list-style-type: none"> • ? • Im (sic) not sure • Electric instruments* • I think it is electric instrument used in electroacoustic (sic) Music* <p>-</p>	<p>dont know</p> <p>dont know, something to do with a (sic) electric guitar?</p> <p>don't know, maybe something to do with electric guitars.</p> <p>erm, electric guitar sorta thing</p> <p>dont no :S</p> <p>duno</p> <p>electric and acoustic instruments played together</p> <p>electric and acoustic played together</p> <p>guitar or natural</p> <p>electric guitar, piano etc.</p>	<p>the computer and is acoustic</p> <p>I don't know sorry</p> <p>don't know</p> <p>high-pitched computerized music</p> <p>electric sounding music, music made using electric programing (sic)</p> <p>I'm not sure sothis is going to be new to me</p> <p>music that is electroacoustic. Can be generated on the computer</p> <p>music made on computers to sound like something realistic</p> <p>music changed or created by a computer.</p> <p>tranforming (sic) music into diffrent (sic) sounds using a computer?</p> <p>I think it is using a computer to make music.</p> <p>outcrossed: electrical; then: I'm not sure sorry!</p> <p>music that spreads around the classroom, sounding different in</p>	<p>keyboard and an electric/techno beat</p> <p>It is classical music using electric instruments</p> <p>keyboard</p> <p>keyboard?</p> <p>music</p> <p>music made with computers, DJ machines etc.</p> <p>music using sounds</p> <p>music which teens like and has modern backing to it</p> <p>Music with alot of beat and it's very loud</p> <p>music with an awesome beat</p> <p>rock</p> <p>Using machines (not proper voices) - different rhythms? Mixing sounds.</p>
--	--	--	--	---

			different areas electric guitars, acoustic acoustic and electric guitar acoustic, electric guitars calvin harris, dj techno	
--	--	--	---	--

Participant	Age	Gender	Group	listening change	knowledge1	knowledge2	listen again	workshop again	
CS02-p01	14	m	1	0	0	0	0.5	0.5	0.5
CS02-p02	13	f	4	0	0	0	0.5	0.5	0
CS02-p03	14	m	3	0	1	1	0	0	0
CS02-p04	13	m	2	1	1	1	0	0.5	1
CS02-p05	13	f	1	1	0.5	0	0	0.5	0.5
CS02-p06	14	m	1	0	1	1	0.5	1	1
CS02-p07	14	f	2	0	0	0	0.5	1	1
CS02-p08	14	f	0	0.5	0	0	0	0.5	0.5
CS02-p09	14	m	3	1	0	0	0	1	1
CS02-p10	13	m	2	1	1	1	0	0.5	1
CS02-p11	14	f	4	1	0.5	0	0	0.5	0
CS02-p12	13	m	1	0.5	0	0	0.5	0	0
CS02-p13	13	m	3	0.5	0	0	0	0.5	0
CS02-p14	14	f	4	1	1	1	0	0.5	0.5
CS02-p20	13	m	2	1	1	1	1	1	1
CS03-p01	13	f	1	1	1	1	1	0	0.5
CS03-p02	13	f	1	0	0.5	0	1	0.5	0.5
CS03-p03	12	f	1	0	0	0	0	0	0
CS03-p04	13	f	4	1	0	0	0	0.5	1
CS03-p05	13	f	4	1	0	0	1	1	1
CS03-p06	12	m	4	0	1	1	0.5	0	0
CS03-p07	13	m	2	0	1	1	0.5	0.5	0
CS03-p08	13	m	4	1	1	1	0.5	1	1
CS03-p09	13	f	1	0	0	0	0	0.5	0.5
CS03-p10	12	f	1	1	0	0	1	0.5	1
CS03-p11	12	m	2	1	1	1	0.5	0.5	0.5
CS03-p12	13	m	3	0	0	0	0	0.5	0
CS03-p13	13	m	3	1	0	0	0	0.5	0.5
CS03-p14	13	m	3	0	0.5	0	0.5	0.5	0.5
CS03-p15	12	m	3	0	0	0	0	0	0
CS03-p16	13	m	2	0	0.5	0	1	0.5	0.5
CS03-p17	12	f	3	1	0	0	0	1	1
CS03-p18	13	f	4	0.5	0	0	0	0	1

CS03-p19	13 m	3	0.5	0	0	1	1
CS03-p20	13 m	3	1	0	0.5	0.5	0.5
CS03-p21	13 m	2	1	1	0.5	0.5	0.5
CS03-p22	13 f	4	1	0	0	0.5	0.5
Cs03-p23	12 f	1	1	0	1	0.5	1
CS03-p24	12 m	2	0.5	0	0	1	0.5
CS03-p25	0 f	4	0	0	0.5	0.5	0
CS04-p01	12 f	2	1	1	0	0	1
CS04-p02	12 m	2	0	1	0	0.5	0
CS04-p03	13 f	3	0	1	1	0	0
CS04-p04	13 f	1	1	1	0.5	0.5	0
CS04-p05	13 f	4	0	0.5	0	0	0
CS04-p06	13 f	2	1	0.5	0	1	1
CS04-p07	13 f	2	1	0	0.5	1	1
CS04-p08	13 f	3	0	1	0	0	0
CS04-p09	13 m	1	0	1	0	0	0
CS04-p10	13 m	1	0	1	1	0	0
CS04-p11	13 m	4	0	1	0	0	0
CS04-p12	0 m	4	0.5	0.5	0	0.5	0.5
CS04-p13	13 m	0	0	0	0	0	0
CS04-p14	13 m	0	0	0	0	0	0
CS04-p15	13 m	0	1	0	0	1	0.5
CS04-p16	13 f	2	0.5	1	0	0.5	0.5
CS04-p17	13 f	3	0	1	0	0.5	0
CS04-p18	12 m	3	0	1	0	0	0
CS04-p19	13 m	4	0	1	0.5	0	0
CS04-p20	13 f	3	1	0.5	0	0.5	1
CS04-p21	13 f	4	1	0	0.5	0.5	0.5
CS04-p22	12 f	1	1	0	0	1	0.5
CS04-p23	13 f	3	1	1	0	1	1
CS04-p24	13 m	0	0	0	0	0.5	0

Listening Response 1

Case Study 2 Listening Response 1

{alienation}Music thing:{/alienation}

- {realword_references}thunder

- rainy

- trucks horn

{/realword_references}

{alienation}- freaky{/alienation}

- {realword_references}water

- demolishing rubble{/realword_references}

{musicalinstruments}- percussion

- gong{/musicalinstruments}

{misc}- little symbols{/misc}

--

{realword_references}Water{/realword_references}

{alienation}Scary{/alienation}

{sounds>description}Bang{/sounds>description}

{realword_references}Crash

Thunder

Car beeping{/realword_references}

{sounds>description}Thud {/sounds>description}

{realword_references}Carcrash (sic){/realword_references}

--

{musicalinstruments}Percussion

{/musicalinstruments}Varied styles

Maybe getting techno

{sounds>description}Telling a story

Through the art or nose

{/sounds>description}{interpretation>war}Maybe a war{/interpretation>war}

{misc}Symbols{/misc}

{musicalinstruments}Gong{/musicalinstruments}

{musicalinstruments}Variety of instruments and objects used{/musicalinstruments}

--

{realword_references}Wind & rain

Clock

Wind chimes

Girl

Bus/train{/realword_references}

{phantasy_world}magic{/phantasy_world}

--

{realword_references}Water{/realword_references} {alienation}scary

woooooooooooooooooooooooooaaaaa {/alienation}

{sounds>description}Bang doongggg smash{/sounds>description}

{realword_references}Bird {/realword_references}

{sounds>description}{realword_references}Woosh. Knife. Scary

Wooshey thunder bang

Car, banny (sic), doing, magical{/realword_references}{/sounds>description}

{phantasy_world}Farries (sic) trolls dungeons narnia{/phantasy_world}

{filmmusic}Alice in wonderland. Peter pan{/filmmusic}

--

{realword_references}Falling rock{/realword_references}

{filmmusic}A tense film-scene{/filmmusic}

{realword_references}A bird{/realword_references}

{sounds>description}Sudden{/sounds>description}

{realword_references}In a carve with droping (sic) water

Car horn{/realword_references}

{filmmusic}Avatar the film{/filmmusic}

{sounds>description}spiritual{/sounds>description}

--

{alienation}{musical_term}Scary slow music{/musical_term}{/alienation}

{realword_references}Children

Bus beat clock birds{/realword_references}

--

{realword_references}Water
{/realword_references}
{sounds>description}Gongything{/sounds>description}
{realword_references}Smashing
Little girl
Carhorn/beep
Train
{/realword_references}
{phantasy_world}Magical
narnia{/phantasy_world}

--

{alienation}Eerie, quiet, {filmmusic}horror movie Soundtrack.{/filmmusic}/{/alienation}
{musical_term}Sudden clunks, getting louder – crescendo,{/musical_term}
{realword_references}Stor.thunder, lightning + rain{/realword_references},
{interpretation>piece}like a dream{/interpretation>piece}
{musical_term}Gets faster fades out
{/musical_term}
{interpretation>piece}Think its stopped and it hasn't.{/interpretation>piece}

--

{realword_references}Smashing
Water
Baby
car beep{/realword_references}

--

{alienation}Strange
{/alienation}
{sounds>description}Atmospheric{/sounds>description}
{aliens}Sci-fi{/aliens}
{musicalinstruments}No lyrics{/musicalinstruments}

--

{realword_references}Running water{/realword_references}
{horror}Spooky{/horror}
{musical_term}Slow tempo{/musical_term}
{horror}Horror{/horror}
{horror}Scary{/horror}
{musical_term}Gets faster{/musical_term}

--

{alienation}Scary{/alienation}
{aliens}Space sort of thip (sic){/aliens}
{interpretation>piece}Someone/something calling out for help{/interpretation>piece}
{aliens}Science fiction
{/aliens}weird (sic)

--

{alienation}Weird
Atmospheric
Strange
Random!{/alienation}
{musicalinstruments}No lyrics{/musicalinstruments}
{sounds>description}Tense{/sounds>description}
{filmmusic}{aliens}Sci-fi films
{/aliens}{/filmmusic}
{horror}horror{/horror}

--

{filmmusic}{aliens}Sci fi-films{/aliens}{/filmmusic}
{horror}Horror{/horror}
{sounds>description}Tense{/sounds>description}
{interpretation>piece}Summer morning{/interpretation>piece}

--

{realword_references}Wind, rain, clock.
Smashing
Little girl

train
{/realword_references}

--

{sounds>description}Sudden{/sounds>description}
{horror}Horror{/horror}
{musical_term}Sustained
Gets thicker
Louder + softer
Change of dynamics{/musical_term}
{interpretation>piece}Like a church{/interpretation>piece}

--

{sounds>description}Smash{/sounds>description}
{alienation}Scary{/alienation}
{musical_term}Loud in some parts{/musical_term}
{misc}Calling out{/misc}
{alienation}unusual{/alienation}

--

{interpretation>war}Gunfire sound effects{/interpretation>war}
{alienation}Psychadellic- wierd (sic) composing of sounds{/alienation}
{aliens}Science fiction{/aliens}

--

{realword_references}Drip drops of water{/realword_references}
{musical_term}Quite slow sometimes
Quite loud sometimes
{/musical_term}
{alienation}Quite scary{/alienation}
{realword_references}Baby
Bus/train/car{/realword_references}

--

{sounds>description}At the beginning I could hear a crackling sound.{/sounds>description} {filmmusic}It seems to me that the sound has come from a movie{/filmmusic}. {sounds>description}Then a bang appeared (sic){/sounds>description} {musical_term}which the (sic) faded into the background. {/musical_term}{realword_references}I could hear money (???) music (???) a then a little child screaming or talking. {/realword_references}{filmmusic}By this point I could almost tell that it has come from an action film or a science fiction film. {/filmmusic}{realword_references}Dropping of water crippled in the background. {/realword_references}

Case Study 2 Listening Response 2

{musical_term}Pitch varies (sic) from high to lower

Repetition

{/musical_term}

{filmmusic}Scary movie{/filmmusic}

{realword_references}{musical_term}Constant beat of a clock{/musical_term}{/realword_references}

--

{musical_term}{realword_references}wind whistling{/realword_references}

pitch{/musical_term}

{realword_references}ticking or dripping

Rumbling

thunder

rain

lightning

{/realword_references}

{musical_term}{realword_references}clock continuously (sic) ticking

{/realword_references}{/musical_term}

{realword_references}wolf howling(cry

footsteps

doorslamming

drill

--

{/realword_references}

{realword_references}windy

Clock Ticking

{/realword_references}

{musical_term}Pitch – low{/musical_term}

{realword_references}Thunder strom

Dog howling

{/realword_references}

{musical_term}Drone{/musical_term}

{realword_references}Foot steps (sic)

Drill

Raining{/realword_references}

--

{musical_term}Drone

Rhythm (sic)

{/musical_term}

{phantasy_world}Big bang

{/phantasy_world}

{musical_term}pitch – low{/musical_term}

{realword_references}Thunder and lightning

Dogs howling

Clock ticking

footsteps

Drill

Raining

{/realword_references}

{musical_term}fades out{/musical_term}

--

- {realword_references}sounds like wind

{/realword_references}

- {musical_term}picks up speed and then slows down

- gets louder and then quieter{/musical_term}
- {realword_references}thunder & lightning
- trikleing (sic) rain sounds
- howling. sounds of a clock as if time is running out!
- screw driver sounds
- door slamming (sic) sound.

{/realword_references}

-{/musical_term} a drone was in this piece{/musical_term}

--

-{/musical_term} real world sounds

- gets louder
- has one sound always in the background

{/musical_term}- thunder

- {realword_references}howling
- big foot steps (sic)

{/realword_references}

{musical_term}- more sounds come in{/musical_term}

-{/realword_references} lightning

{/realword_references}

-{/musical_term} gets really quiet towards the end

{/musical_term}--

Joshua Wetton

{realword_references}{musical_term}clock – steady tempo

{/musical_term}{/realword_references}fire crackling

{realword_references}thunderstorm

Chimes

Rain

Wind

Howling

Door Creak

Footsteps

Heartbeat

Chainsaw? Hoover? – something electrical{/realword_references}

{musical_term}fade out

layers – thick

repetition

{/musical_term}

--

{musical_term}{realword_references}Clock – melody

fire – drone

cresendo (sic)

layer of rain

footsteps – rhythm{/realword_references}{/musical_term}

--

{realword_references}clock (ticking)

wind

Storm{/realword_references}

{musical_term}texture – thick

tempo – slow

pitch – low

{/musical_term}

{realword_references}wolfs

night

{/realword_references}

{sounds>description}scary{/sounds>description}

{realword_references}stomping

door slamming (sic)

drill

{musical_term}{/realword_references}

got quite (sic) at the end{/musical_term}

--

{realword_references}Clock ticking fire burning and the wind howling

Thunder/Storm where (sic) wolfs (sic). Raining, gutter lightning it sounds like gates are trying to be broken/braking in. Dogs howling.

{sounds>description}Scary.{/sounds>description}

{/realword_references}

--
{musical_term}Rhythm louder softer Drone
{/musical_term}
{realword_references}Storm, rain, tunder (sic), BIG THUNDER!!, VERY BIG
THUNDER!! Dogs.{/realword_references} {musical_term}Low, pitch,
{/musical_term}{realword_references}clock
Door opens
Foot steps
Drill
{/realword_references}
{musical_term}fades!{/musical_term}

--
{realword_references}Clock
fire burning
Wind
thunda(sic) storm
{/realword_references}
{musical_term}texture – thick
tempo – slow
pitch – low
{/musical_term}
{realword_references}wolf howling
happening at night{/realword_references}
{sounds>description}scarey (sic)
{/sounds>description}
{realword_references}somebody walking
door slaming(sic)
drill
{/realword_references}
{musical_term}quite (sic) at the end.
{/musical_term}(same as above)

--

- {musical_term}- pitch gradually comes in then fades out
- different melody throughout
- same rhythm(sic) in the background{/musical_term}
- {filmmusic}- movie type theme
- {/filmmusic}
- {musical_term} continuous beat
- duration is very long
- loud
- some dynamics are loud
- constant beat

{/musical_term}

--

{musical_term}{realword_references}clock in background(sic)

Fire burning = cracking – soft, thin, pitch change through piece

{/realword_references}{/musical_term}

{realword_references}Thunderstorm

Wind rain

{/realword_references}

{musical_term}Variety of dynamics

Howling Repetition – loud Thick

{/musical_term}

{realword_references}Door opens. closes.

Footsteps

Knock? Door opening. closing?

Chainsaw? Hoover? Blender? Drill? – lowing

{/realword_references}

{musical_term}quieting doem

fade out{/musical_term}

{musical_term}The louder the pitch and thickness depends on the more things there are (Thickness, pitch = dynamics)

{/musical_term}

--

{musical_term}Tempo

Repetition

pitch – high to low{/musical_term}

{realword_references}It's a thunder storm

{/realword_references}

{musical_term}texture – the piece gets thicker and faster the slows(sic) down

Theres(sic) a repeative(sic) clock going on

throughout(sic) the piece.

{/musical_term}

Case Study 3 Listening Response 1

- {alienation}different
- scary{/alienation}
- {filmmusic}doctor who, sort of thing {/filmmusic}
- {musical_term}- constant beeping{/musical_term}
- {sounds>description}- sudden crackling{/sounds>description}
- {aliens}- robots
- UFO landing {/aliens}
- {realword_references}- Swarm of bees
- Snakes? {/realword_references}
- {filmmusic} A transformer {/filmmusic}
- {aliens}- Future like {/aliens}
- {sounds>description}- Hissing. {/sounds>description}
- {realword_references}- Screaming of people, running away {/realword_references}
- {musical_term}- Loud {/musical_term}
- {realword_references} - Taking off again
- Airport, landed, microphone speaking in plane{/realword_references}

-
- {musicalreference}- club
- electro
- prodigy
- {/musicalreference}
- {aliens}- (aliens)
- landing{/aliens}
- {alienation}- disturbing
- hightec
- weird space{/alienation}
- {alienation} not what I would describe as music.
- {/alienation}
- {musicalreference}- DJ{/musicalreference}
- {aliens}- Sounds from space or something
- {/aliens}
- {appreciation>no}{alienation} Annoying beeping

{/alienation}{/appreciation>no}

--

{filmmusic}Movie, beginning with a scary bit

{/filmmusic}

{interpretation>piece}Like a countdown

{/interpretation>piece}

{interpretation>war}A fight{/interpretation>war}

{realword_references}A car revving its engines

Swarm of flies

A train braking

{/realword_references}

{filmmusic}A transformer{/filmmusic}

{realword_references}Laser quest – mega zone

Plane

Helicopter

{/realword_references}

{filmmusic}Terminator{/filmmusic}

{realword_references}Frog

Birds

Lazer (sic) gun

Boat

{musicalinstruments}African drums in background{/musicalinstruments}

People talking

Cricket - animal

{/realword_references}

--

{realword_references}- car reversing

- emergency

{/realword_references}-{aliens} alien{/aliens}

{phantasy_world}- dinosaur

{/phantasy_world}

-{realword_references} cheese

- waterfall

- woodpecker
- birds {/realword_references}
{filmmusic}{horror}- monsters
- horror film {/horror}{/filmmusic}
{realword_references}- squeaky garden gate
- aeroplane
- rocket{/realword_references}
{filmmusic}- transformers{/filmmusic}
{realword_references}- {appreciation>no}annoying beeping{/appreciation>no}
- cannibal (sic)
- egg
- submarine{/realword_references}
{alienation}sounds very alienfied (sic){/alienation}

--

{alienation}Weird{/alienation}
{aliens}Alien
Station
{/aliens}
{appreciation>yes}Cool{/appreciation>yes}
{aliens}Ufo
Sci-fi
{/aliens}
{alienation}Strange
Creepy{/alienation}
{musical_term}Tension building up
{/musical_term}
{musical_term}Electronic{/musical_term}
{musical_term}Long
{/musical_term}
{musicalinstruments}No voices{/musicalinstruments}
{musical_term}Big build up
Loud, then quit{/musical_term}

--

{realword_references}1.) car alarm {/realword_references}
{aliens}in space
UFO
Aliens
Mars{/aliens}
{filmmusic}Rain maker{/filmmusic}
2.)

--

{realword_references}- submarine{/realword_references}
{phantasy_world}- robot speaking {/phantasy_world}
{sounds>description}- scary {/sounds>description}
{realword_references}-water{ /realword_references}
-{interpretation>piece} danger{/interpretation>piece}
{aliens}- space{/aliens}
{sounds>description}- dramatic
- intresting (sic){/sounds>description}
{realword_references}- waves
{/realword_references}
{aliens}- aliens
- flying
- weired (sic)
- misterious (sic)
- UFO
{/aliens}
- Long
{filmmusic}- Like movie music{/filmmusic}
{musical_term}- Spestial (sic) sounds {/musical_term}
{realword_references}- Egg{/realword_references}

--

{realword_references}Submarine
Water
Beeping{/realword_references}
{aliens}Aliens{/aliens}

{realword_references}Crashing
{sounds>description}High{/sounds>description}
Helicopter
Whirring{/realword_references}
{aliens}U.F.O{/aliens}
{phantasy_world}Bermuda triangle{/phantasy_world}
{realword_references}Radio{/realword_references}
{sounds>description}Fast{/sounds>description}
{filmmusic}Transformers{/filmmusic}
{sounds>description}Inaudible{/sounds>description}
{sounds>description}Crack{/sounds>description}
{realword_references}Rip
Egg {/realword_references}

--

-{musicalreference} club
- prodigy{/musicalreference}
{aliens}- space
- robots
- moon landing{/aliens}
- {realword_references}radio
{/realword_references}
{filmmusic}- aliens (film){/filmmusic}
{realword_references}- eating
- cars
- broken radio
- sea
- bugs
{/realword_references}- disturbia (sic)
{musical_term}- tension{/musical_term}
{realword_references}- smokes
- jungle
- beles (sic)
- car brakes
{/realword_references}

{musical_term}- bass{/musical_term}
 {realword_references}
 - bad gates
 - swings
 - deserted town
 - dark room
 {/realword_references}-
 {musicalreference}DJ{/musicalreference}
 {realword_references}- Tube train
 - Bad microphone
 - Birds
 - Butterflies
 - Egg
 - Planes
 - Sea
 {/realword_references}
 {phantasy_world}- Dinsours (sic) {/phantasy_world}
 {realword_references}- Flight {/realword_references}
 {aliens}- Cyber space
 - Sci-fi
 - Space mission{/aliens}
 {realword_references}- Food eating
 {/realword_references}
 {alienation}- Confusion{/alienation}
 -{realword_references} Submarine
 {/realword_references}-

 --
 {aliens}Alien
 {alienation}Strange{/alienation}
 Robotic {/aliens}
 {appreciation>yes}Cool{/appreciation>yes}
 {musical_term}Loud
 Bass {/musical_term}
 {aliens}Sci-fi{/aliens}

{musical_term}Builds up tension {/musical_term}
{aliens}Futuristic{/aliens}
{musical_term}Long and drawn out
{musicalinstruments}No voices just noises{/musicalinstruments} {/musical_term}

--

{sounds>description}{musical_term}Electronic
(sic){/musical_term}{/sounds>description}
{misc}Merik{/misc}
{aliens}Sc-fi{/aliens}
{alienation}A bit random{/alienation}
{musical_term}Put a regular beat
{/musical_term}
{misc}Peers{/misc}
{musicalinstruments}Instrumental{/musicalinstruments}
{misc}Benston (???){/misc}
{musical_term}{sounds>description}Very merid
ending{/sounds>description}{/musical_term}

--

{sounds>description}Computerised{/sounds>description}
{aliens}Futuristic
{filmmusic}Robot-doctor who sort of things{/filmmusic}{/aliens}
{musical_term}Lots of everyday noises put together{/musical_term}
{musical_term}Strong base{/musical_term}
{musical_term}Noise collage (lots of noises piled on top of each other){/musical_term}
{realword_references}Pilot talking / air communications
{/realword_references}
{misc}??? at the end{/misc}

--

{aliens}Space
Alien
{filmmusic}Starwars{/filmmusic}{/aliens}
{sounds>description}{appreciation>no}Annoying Beeping Sound{/appreciation>no}

{/sounds>description}{misc}
Egg
Synchronised
Dance more s
{/misc}
{filmmusic}Terminator{/filmmusic}
{realword_references}Flying {/realword_references}
{sounds>description}{appreciation>no}More annoying beeping sound
{/appreciation>no}{/sounds>description}Space station
{filmmusic}{aliens}C3PO{/aliens}{/filmmusic}

--

{realword_references}Police{/realword_references}
{aliens}MI5
Alien {/aliens}
{realword_references}Water
Fire hydrant
Beginning
Helicopter
Rope bridge
Laser quest!
Take off
Whirl
{/realword_references}
{aliens}Area 5!{/aliens}
???
{realword_references}London underground
Spy plane
Shutting down
Radio
People
electricity (sic) failure{/realword_references}
{aliens}space cracker{/aliens}

--

{realword_references}A helicopter with soldiers talking
A monster eating
Sea-waves
Swarm of flies
A train
A jungle with bats
Lasers (sic)
Helicopter landing in a jungle
A saw going through metal
Birds
Plane
African drums in background
People talking through a walkytalky
Cricket
cracker {/realword_references}

--

{alienation}Very different
??? ??? different sounds{/alienation}
???

{musicalinstruments}guitar
{/musicalinstruments}
{alienation}weird{/alienation}
{misc}kells?{/misc}
{sounds>description}Distorted?{/sounds>description}
{misc}Shh?{/misc}
{sounds>description}cracks{/sounds>description}

--

{appreciation>yes}- like the beat. – I LIKE IT ALL {/appreciation>yes}
{sounds>description}{musical_term}-all computer generated sounds
{/musical_term}{/sounds>description}
{sounds>description}- 'common' sounds {/sounds>description}
{musical_term}- gradually grows larger and larger {/musical_term}

{sounds>description}- gates, beeping sounds, bells, distorted voice, cracking, egg
{/sounds>description}

--

{alienation}- odd – different (sic){/alienation}

{filmmusic}- scary movie music{/filmmusic}

{realword_references}- cars? – trains – (people)?{/realword_references}

{appreciation>yes}- Cool tune{/appreciation>yes}

{musical_term}{sounds>description}- Different noise/pitch levels

{/sounds>description}{/musical_term}

{musical_term}- Tension builds (kind of) {/musical_term}

{musical_term}- Longer than most{/musical_term}

{filmmusic}- Transformers!{/filmmusic}

{appreciation>yes}- V. cool {/appreciation>yes}

--

{realword_references}Hospitals,

Technology.

Police.

Toilet flush.

Cod.

Helicopter

Glass breaking

Tsunami.

{/realword_references}

{filmmusic}Darth vader.

{/filmmusic}

{realword_references}Sitor. (sic)

Train.

Snakes.

{musicalinstruments}Drums{/musicalinstruments}.

{/realword_references}Survival.

{misc}Charb?

{/misc}

{sounds>description}Eerie.

{/sounds>description}
{realword_references}Birds.
Swings.
{/realword_references}
{misc}Mondeys{/misc}.
{filmmusic}Harry Potter?{/filmmusic}
{realword_references}Brazil.
Running.
Cops.{/realword_references}
{filmmusic}Doctor who.{/filmmusic}

--

{aliens}Robotic{/aliens}
{musical_term}Pulse in background{/musical_term}
{misc}Bsy{/misc}
{musical_term}Layers of sound
Different dynamics
Quite repetitive
Contrast{/musical_term}
{aliens}Out of space{/aliens}
{sounds>description}mysterious{/sounds>description}

--

{realword_references}Hospital
Road
aeroplane(sic) / rocket
fire
workshop{/realword_references}
{aliens}aliens{/aliens}
{realword_references}tribes{/realword_references}
{horror}monster{/horror}
{realword_references}fireworks
{/realword_references}
{aliens}aliens
robots{/aliens}

{filmmusic}transformers{/filmmusic}
{realword_references}sky{/realword_references}
{aliens}aliens robots
robots{/aliens}
{realword_references}calfactory (sic)
factory
nover craft (sic)
car
screwdriver
welder{/realword_references}

--

{aliens}Aliens. – ufos{/aliens}
{realword_references}traffic (sic)
{/realword_references}
{musical_term}strong noises, contrast well against each other
{/musical_term}
{sounds>description}busy{/sounds>description},
{musical_term}large build up
many different sounds.{/musical_term}
{realword_references}Landing?{/realword_references}
{musical_term}Strange
Detailed piece
Repetitive
Strange activity
{/musical_term}
{aliens}Outer space (image)
{/aliens}
{musical_term}Fading ending
{/musical_term}

--

(scattered over the paper)
{horror}end of the world,
bounsy,

crime,
confused,
scared, {/horror}
{realword_references}tropic rainforst-night,
ants collecting food, {/realword_references}
{filmmusic}jerasic (sic) park, {/filmmusic}
{realword_references}rain,
dectatives (sic),
a jungle, {/realword_references}
{musical_term}speed,
movement, {/musical_term}
{realword_references}searching,
butterflies/mosectows (sic),
flying,
plans (sic) landing in Africa,
spells,
helicopter,
animals, {/realword_references}
{phantasy_world}magic, {/phantasy_world}
{realword_references}undergrowth, {/realword_references}
{interpretation>war}invasion,{/interpretation>war}
{realword_references}life and death,
birds, war,
train stations,
agent offices.
{/realword_references}

--

{realword_references}- train emergency
- something going wrong
- rushing around
- tension
- cars
- road
{/realword_references}

Case Study 3 Listening Response 2

{musical_term}soundscape

real world sounds

generated{/musical_term}

{realword_references}wind

{/realword_references}

{sounds>description}lots going on{/sounds>description}

{aliens}robots

{/aliens}

{realword_references}broken fridge{/realword_references}

{musicalinstruments}real music not just sounds > accordion{/musicalinstruments}

{sounds>description}happy{/sounds>description}

{sounds>description}scary{/sounds>description}

{misc}links in ???{/misc}

{musical_term}gets loud + quiet {/musical_term}

{aliens}future{/aliens}

{musicalinstruments}cello{/musicalinstruments}

{realword_references}footsteps

sea

sea shanty{/realword_references}

{interpretation>death}dead{/interpretation>death}

long

{sounds>description}high squeaky noises{/sounds>description}

{realword_references}swings{/realword_references}

--

{realword_references}people

ill

food

outside

shut door

another land

cars

times
travelling – good byes
prime evil!
(sea strange arrivals)
prais(sic)
seeing things
happy bikes
rain
sheep
seas
bad wather
big waves
boats sinking
plains
helicopter coming to save people
hovering
wind blaring
{/realword_references}
{aliens}space
mission
landing{/aliens}
{filmmusic}avater(sic)
harry potter {/filmmusic}
{misc}gobletof pure(sic){/misc}
{realword_references}kitchen
knives{/realword_references}
{interpretation>death}death{/interpretation>death}
{realword_references}birds{/realword_references}
{sounds>description}bang{/sounds>description}
???
{realword_references}sea side
shells
paris
ocean calm
knoked(sic) out

playing
horses
???
gates
swinging
play ground {/realword_references}
{interpretation>death}death{/interpretation>death}

--
{realword_references}speech
chatter {/realword_references}
{sounds>description}
{musical_term}electoic(sic)
generated{/musical_term}
{misc}on – off {/misc}
{realword_references}beeper
traffic
{/realword_references}
{musical_term}static{/musical_term}
{realword_references}jar{/realword_references}

--
{realword_references}people
party
birds{/realword_references}
{aliens}aliens{/aliens}
{realword_references}cars
traveling(sic){/realword_references}
{sounds>description}sudden sounds{/sounds>description}
{realword_references}france(sic)
off a train
boat
river
onions
bycycle(sic)

2012?

rain

water

helicopters

planes {/realword_references}

{interpretation>death}blood

end of the world,{/interpretation>death}

{aliens}ufos

area 51 {/aliens}

{filmmusic}avatar {/filmmusic}

{interpretation>war}fights{/interpretation>war}

{realword_references}panting

tiredness

breakages

banging

trying to unlock

spiders

beach

stuff washing up

children

walking

park

swings

gate{/realword_references}

{sounds>description}scary{/sounds>description}

{interpretation>death}death{/interpretation>death}

--

silence

{realword_references}school

men

fans

birds

sea

black

bedroom
{/realword_references}
{filmmusic}transformer{/filmmusic}
{realword_references}car
light flash
resteraunt(sic)
chatting
guys
Jungle
bells
boats
insects
fridge
library
Frances
Paris
{/realword_references}
{misc}berreas(sic){/misc}
{realword_references}cars{/realword_references}
{misc}2cv's(sic) {/misc}
{realword_references}houses
cafés
music
laughter
river
keys {/realword_references}
{sounds>description}doomgtoom(sic){/sounds>description}
{realword_references}water
cars
motorway
lorry
plane
airport
holiday
war

gun
family
bus
station
gun {/realword_references}
{interpretation>piece}happiness {/interpretation>piece}
buzzing
{filmmusic}ps2 game{/filmmusic}
{aliens}sci-fi{/aliens}
{realword_references}Rihanna
laun (sic) mower
bugs
wolf
dog
{/realword_references}
{filmmusic}scary movie{/filmmusic}
{aliens}space
moon
mars{/aliens}
{realword_references}cutlery
plates
sea again
calmness
Scotland {/realword_references}
{interpretation>death}axe
death {/interpretation>death}
{realword_references}kids
Liverpool
boats
gate
swings
parte(sic) {/realword_references}
{interpretation>death}nothingness
silence{/interpretation>death}

--
- {alienation} weird{/alienation}
- {realword_references} talking
- birds
- silence {/realword_references}
- {aliens} alien{/aliens}
- {filmmusic} transformers2 {/filmmusic}
{appreciation>yes}- cool {/appreciation>yes}
- {realword_references} airport {/realword_references}
{musical_term}- generated{/musical_term}
- {aliens} sci-fi {/aliens}
- {realword_references} band
- France
- sea
- beach{/realword_references}
{sounds>description}- flowing
- stuttering
- dramatic {/sounds>description}
{realword_references}- Paris
- swing {/realword_references}

--
{realword_references}- voices{/realword_references}
{appreciation>yes}- awesome!{/appreciation>yes}
{musical_term}- generated{/musical_term}
{sounds>description}- eerie/scary {/sounds>description}
{musical_term}- high pitched{/musical_term}
{realword_references}- circus {/realword_references}
{sounds>description}- robot like{/sounds>description}
{realword_references}- flooded roads? cars
- planes
- engine
- saw{/realword_references}
{sounds>description}- deep
- futuristic

- loud {/sounds>description}
{realword_references}- children{/realword_references}
{sounds>description}- screechy (sic) thing{/sounds>description}

--

{realword_references}
-Bird
- road
- town meeting
- falling plastic
- France, Paris
- busy street
- puddles
- sea
- beach
- plane
- space shuttle(sic)
- quadbike
- revving (sic)engine
- workshop
- Mc Donalds
- punch
- running
- swing {/realword_references}

--

{realword_references}music
pub men talking
by the sea ??? ??? abduction
bach u a mosque(sic)
jingle {/realword_references}
{musical_term}beat
generated {/musical_term}
{musicalinstruments}Harmonia {/musicalinstruments}???
{realword_references}cates

cars
water
sea
storm
???
spray
ship
place loard up
holiday
tube
train
status
bus
{/realword_references}
{aliens}alien spaceship{/aliens}
{realword_references}lawn mower
go-karts
???
???
???
???
stamp
by getting attached
turbo
???
???
???
{/realword_references}
{interpretation>death}death{/interpretation>death}

--
{realword_references}Footsteps
door slam
chainsaw {/realword_references}
{filmmusic}transformers{/filmmusic}

{musical_term}high pitched {/musical_term}
{aliens}alien{/aliens}
{realword_references}alarm
circus {/realword_references}
{sounds>description}posh{/sounds>description}
{realword_references}sea
waves {/realword_references}
{musical_term}fast{/musical_term}
{realword_references}car
aeroplane
bans
cutting
mower
dripping
keys
door opens
metal
plates
birds
crystallising
ice-cream
kids
creaking
door {/realword_references}

--
{realword_references}school
community(sic) meeting
seaside
door slamming
{/realword_references}
{filmmusic}transformer{/filmmusic}
{realword_references}car
metronome(sic)
adults talking

kid getting told off
bugs flying
bells
refrigerator
bus
traffic lights
band
road
pud(sic)
restaurant
sea (again)
circus
water
motorway
plane
airport
family
train
underground train
train stopping
doors opening
train passing
rocket
F-18
mower
bugs
tripping
{/realword_references}
{sounds>description}{alienation}weird music{/alienation}{/sounds>description}
{musical_term}getting louder
getting closer
getting further away {/musical_term}
circus
{realword_references}sea side
band

fight

people running away

park

swings squeaking {/realword_references}

--

-{realword_references} talking – market

- beach {/realword_references}

- {aliens}robots{/aliens}

- {musical_term}generated sounds{/musical_term}

- {realword_references}cars

- airport{/realword_references}

- {musical_term}generated sounds – {filmmusic}transformers

{/filmmusic}o it has some generated sounds in to link up with the real world

sounds{/musical_term}

- {realword_references}sea/crashing waves

- airopplane(sic) {/realword_references}

-{aliens} some like futuristic music{/aliens}

- {sounds>description}spooky {/sounds>description}

- {musicalinstruments}bagpipe{/musicalinstruments}

- {realword_references}fairground music

- swing{/realword_references}

--

{realword_references}speaking

birds

door closing

drill

cars

trainstation / airport

chavs

alarm

{musicalinstruments}acordian(sic){/musicalinstruments}

sea

stones

wind
 aeroplane
 train brakes
 scanner
 tube train
 spaceship
 cutlery
 glass breaking
 ???
 mini kid ???
 sea saq
 swings
 {sounds>description}squeak{/sounds>description} {/realword_references}

 --
 {realword_references}people speaking{/realword_references}
 {musical_term}birds – varying pitch{/musical_term}
 {realword_references}slam of door
 cars driving past
 people talking
 {/realword_references}
 {musical_term}different pitches (sic) and rhythms(sic){/musical_term}
 {sounds>description}beeping sound{/sounds>description}
 {musical_term}pipes playing – rhythm change{/musical_term}
 {musical_term}pitch change in pipes {/musical_term}
 {realword_references}waves crashing{/realword_references}
 {musical_term}quiet to louder + louder
 vary in pitch {/musical_term}
 {realword_references}helicopter taking off {/realword_references}
 {musical_term}vary in pitch
 louder + quieter{/musical_term}
 {aliens}like an alien{/aliens}
 {realword_references}waves
 pipes {/realword_references}
 {sounds>description}squeaking noise{/sounds>description}

{musical_term}getting quieter {/musical_term}
{realword_references}swings going back and forward{/realword_references}

--

{realword_references}people speaking (sic) in a bub
by the coast – sea gulls
cars
in a pub with the mumble of a ???
a fridge
a zebra crossing
sea
a lorry{/realword_references}
{aliens}robot
alien invasion {/aliens}
{musicalinstruments}cordian(sic){/musicalinstruments}
{realword_references}children – sea – swings – footsteps {/realword_references}

--

start – {realword_references}voices (busy place) quite long
- birds, door{/realword_references}
{musical_term}- loud generated sound {/musical_term}
- {realword_references} cars
- {musical_term}more voices, quite long{/musical_term}{/realword_references}
- {musical_term}{sounds>description}little, high pitched generated
sounds{/sounds>description}{/musical_term}
- {realword_references}band in the street
- all [above mw] describes a street or town {/realword_references}
{musical_term}- does generated sounds, went on for a long time {/musical_term}
{realword_references}- goes back to street{/realword_references}

--

{realword_references}sandpaper
people talking
sea gulls
door slamming{/realword_references}

{aliens}alien/robot{/aliens}
{realword_references}cars
airoplane(sic)
airport {/realword_references}
{aliens}small alien{/aliens}
{realword_references}car starting
french music
waves
pelican, crossing beep
louder waves
plane
plane's firing
inside a plane
plane going by
chain saw
water dropping
flies {/realword_references}
{musical_term}a low drone{/musical_term}
{realword_references}a whisk
waves
sea gulls
french music
children talking
a swing {/realword_references}

--

{realword_references}crowd – marked?
birds – seagulls
{/realword_references}
{filmmusic}transformers!{/filmmusic}
{realword_references}washing machine
fair/carnavel(sic)
alarm
sea/waves
airoplane(sic)

cars
Junction
mechanical things {/realword_references}

--

{aliens}space ship{/aliens}
{realword_references}celebrating
cheers
fireworks
door
bold
sace
firedoor
chatter
slang
???
cold
antitheft alarm
{musicalinstruments}accordion
harmonium
instruments{/musicalinstruments}
rain
water
sea
car
chimes
electodies(sic)
mechanic
construction
crane
shops
weak???
dings
coke
breaking

boltoners(sic)
bikes
swings
parks {/realword_references}

--

school hall
low pitch atm(sic)
generated sound – spaceship of aliens
real world – voices/speaking
high volume
real world again – instrument & water splashing
sea, beach
cars on a busy road
mix between real world and generated all way through
playground – swings squeaking – real world sound

--

{realword_references}talking
birds
door
cars
walking
speech
{/realword_references}
{aliens}robot{/aliens}
{misc}weider(sic)
tridge(sic) {/misc}
{aliens}robot{/aliens}
{realword_references}traffic
lights
musicband
beach
cars
traffic

zooming car
zooming motorbike
raindrops
water
knife
waves
???
waves
{/realword_references}
{sounds>description}
rhumping(sic)
squeaky {/sounds>description}
{misc}gone{/misc}

--

{realword_references}people
talking
birds{/realword_references}
{musical_term}generated sound{/musical_term}
{realword_references}cars{/realword_references}
{aliens}alien {/aliens}
{realword_references}{musicalinstruments}music - acordion(sic){/musicalinstruments}
the sea
children
swings{/realword_references}

Case Study 4 Listening Response 1

{realword_references}under ground (sic){/realword_references}
{sounds>description}transforms
changes{/sounds>description}
{aliens}District a{/aliens}
{realword_references}shattered(sic) glass{/realword_references}
{aliens}aliens (sic){/aliens}
{misc}Halo (sic){/misc}
{realword_references}Germany
cars
cinema{/realword_references}
{sounds>description}scary{/sounds>description}
{realword_references}sea{/realword_references}
{alienation}random{/alienation}

--

{realword_references}
1. fight Breaking ant??
2. getting in a car (Driving)
3. on the street
4. In town square
5. at the sea
6. Wind, Storm
7. flies (sic) dieing (sic) {/realword_references}
{aliens}8. space ship
9. aliens
{/aliens}

--

{realword_references}In an office a lot of people talking
New York
road
cars
pins dropping

France
Airoplanes(sic)
train stations
underground
Ireland
river
Swings
Bird {/realword_references}

--

{musical_term}Tune
Beat
Hook
Vocals
Different Sounds
Different Environments {/musical_term}
???
{realword_references}Traffic Lights
French Restaurant
Person ??? change {/realword_references}
{misc}at a kill (?){/misc}
{sounds>description}smashing / Thundering Noises
{/sounds>description}
{realword_references}Kids playing on the street.{/realword_references}

--

{musical_term}made up of normal sounds mixed with other noise {/musical_term}
{realword_references}a road
voices {/realword_references}
{sounds>description}static
quite jarring {/sounds>description}
{musicalinstruments}an arcordion (sic)? harmonica? {/musicalinstruments}
{realword_references}the sea {/realword_references}
{interpretation>piece}{musical_term}talks a story? {/musical_term}
seems quite depressing.{/interpretation>piece}

--

Reminded me of these things:

{realword_references}Busy place

cars

talking

glass

traffic lights

panic

Different parts of a city maybe. Can hear cars, buses people. Roads and beaches.

children on swings. {/realword_references}

--

{realword_references}people chatting

Door slams.

Sudden interruption of random music

laughter

Sounds like sea shells

Traffic light sound

Street players

Cars.

Water splash

Coins

Seagulls

Shells

Street Players (again?)

Car door?

Kid speaking

football

Gate squeaking

{/realword_references}

--

{musicalinstruments}cymbals,{/musicalinstruments}

{realword_references}restraunt(sic), busy, kitchen{/realword_references},

{sounds>description}crackled,{/sounds>description} {realword_references}cars, road,
conversation{/realword_references},{/sounds>description} tata
(sic),{/sounds>description}
{realword_references}transfer, market, local, {/realword_references}
{sounds>description}happy, busy,{/sounds>description}
{realword_references}crossroad, {/realword_references}{filmmusic}transformer
talk,{/filmmusic}
{realword_references} sea, wind, cold, blue, knife(sic), electricity, helicopter, light,
{/realword_references}
{horror}something coming, scared, mysterious,{/horror}
{realword_references} desert, rattler, snake, digging, sound new tech, food being
made, sea gulls, boys playing on rocks, {horror}swing with nothing on – ghost, lonely.
{/horror}{/realword_references}

--

{horror}Monsters
{/horror}
{aliens}Robots attacking airport or train{/aliens}
{realword_references}Ice
Travelling.
Paris.
Sea. {/realword_references}
{appreciation>no}boring{/appreciation>no}
{realword_references}tools
Kids
Glass breaking
Swing {/realword_references}

--

{realword_references}
- birds
- France
- sea
- holidays
- helicopter

- feet
- park
- swings
- door squeeks {/realword_references}
- {filmmusic}- harry potter{/filmmusic}

--

- {realword_references}I can hear talking, cars, doors slamming, beepers beeping
- It sounds like a town centre or a busy place
- {musicalinstruments}- the accourdion(sic) sounds French.{/musicalinstruments}
- I can hear water
- an aeroplane
- {musicalreference}- techno sounds{/musicalreference}
- I can hear glass breaking
- voices
- running (foot steps)
- creaking (swings?)
- lots of people. {/realword_references}

--

- {realword_references}- busy places
- Roads
- Swimming pool/sea
- cars
- airplane
- glass breaking
- children playing{/realword_references}
- {sounds>description}- scared{/sounds>description}

--

- {alienation}Whats happening – no music!! {/alienation}
- {realword_references}TV crackling – grey scwiggly (sic) lines
- Pub – people talking
- Glass smashing – stars.
- Traffic lights – busy time (lots of people) city centre

- by the sea? waves...

Cars going by – trucks getting closer {/realword_references}

{phantasy_world}Magical – sprinkling.{/phantasy_world}

{realword_references}Aeroplane taking off – suspense

Building – bricks & mortar Mixing

- Seagulls.

Back to “By the sea? waves...”

Little boy talking & running

Someone walking up stairs & then on a swing – creaky. {/realword_references}

--

{musical_term}Statick (sic)

{/musical_term}

{realword_references}People talking

France – Paris

The sea

Water trickling

Bugs scurrying around

{/realword_references}

--

{realword_references}People talking

Doors opening and closing

Water – Sea waves

wind + chains

Squeeks

cars

spooky

Flies – wings fluttering

Footsteps

ambulences (sic) / police

glass

hellecoptor(sic)

swing - maby(sic) in a park?{/realword_references}

{sounds>description}sudden noises{/sounds>description}

--

{realword_references}gun
voices
car {/realword_references}
{aliens}alien{/aliens}
{realword_references}fairground
burgaler(sic) alarms {/realword_references}
{aliens}sic-fyi(sic){/aliens}
{realword_references}sea sid(sic) {/realword_references}
{misc}seaon(sic) stones{/misc}
{realword_references}bees
airoplanes (sic)/ helicopters
footsteps
heavey(sic) breathing
but chain {/realword_references}
{sounds>description}scary{/sounds>description}
{realword_references}wind
fairground
children
squeaky gate / noise
arrow {/realword_references}

--

{realword_references}- people talking and then cars
- car doors slam
- A person going into a shop in a busy area (city centre)
- sounds quite french (sic)
- sounds like an aeroplane, taking off.
- seagulls glass smashing
- footsteps and voices,
- running, a boy talking and then creaking
{/realword_references}

--

{realword_references}gun
cars
vehicles{/realword_references}
{aliens}alien communication{/aliens}
{realword_references}car alarms
{musicalreference}Caribbean music (restraunt(sic) music{/musicalreference})
water (waves) – (the sea)
aeroplanes
voices (spanish?)
vermin, bugs (noises)
helicopter
footsteps
creeking doors
cluttering tools
wind
punch
something moving in the wind
arrow
{/realword_references}

--

- {alienation}strange
- not music {/alienation}
{filmmusic}- some bits sound a bit like a movie{/filmmusic}
{realword_references}- going from place to place (different countrys(sic))
{/realword_references}-
{musical_term} sound effects {/musical_term}
{sounds>description}- electronic flies {/sounds>description}
{interpretation>death}- killing
- everything has gone

--

{/interpretation>death}
{aliens}Market talking robot {/aliens}
{realword_references}factory busy rewind

clap people cross a road
restauraunt(sic)
waves crack
sea
aeroplaine cricket (bug)
propellor (sic) simmering
turbo Fan breath
"leave him alone" coin machine
ahammer swings
{sounds>description}thud
smash{/sounds>description}
liverpool
Kids.{/realword_references}

--

{aliens}- modern: sci-fci(sic): spaceship{/aliens}
{realword_references}- cars/train/car runnin
- sparkle
- meter detector
- French
- Waves
- Normal day
- Sea
- Someone lie
- Knifes / Forks
- Wind
- People speaking
- Swings along: creak / scary
- Cluttering
{/realword_references}

--

- {realword_references}talking
- traffic lights
- city, cars moving, people walking, rain, puddles

- a helicopter
- frightening sounds
{interpretation>war}- war {/interpretation>war}
{sounds>description}- calm{/sounds>description}
- child talking
- swing chains{/realword_references}

--

{realword_references}people talking
closed door{/realword_references}
{sounds>description}crackling {/sounds>description}
{realword_references}cars passing by
traffic lights then {musicalreference}acordian(sic) {/musicalreference}
Waves {/realword_references}
{musical_term} static soundsing waves
static and cars{/musical_term}
{aliens}sci-fi sounding strings {/aliens}
{sounds>description}scary sounding {/sounds>description}
{realword_references}making a drink by sea
acordian(sic) and waves again
{musicalinstruments}{sounds>description}smashing sound acordian stops
{/sounds>description}{/musicalinstruments}going up stairs, creaking gate.
{/realword_references}

Case Study 4 Listening Response 2

{realword_references}Cash Machine
Train
Church Bells
Cars
{musicalinstruments}Gong{/musicalinstruments}
Tube
Singing
Car Crash?

Sandpaper rubbed together
Breathing
Little children
Ocean
Train tracks
Elevator
Music
Doors creaking
Car Horn
Wind
Bells
Rain dropping on concrete
Fishing Rod
Whales-blow horn.
Foot steps. (sic)
Crashing sounds.
Thunder-storm/ lightning.{/realword_references}
--
{realword_references}Railway stones
bud, then smooth
Car Engine{/realword_references}
{aliens}Alien noise
{/aliens}
{realword_references}Crow
graveyard
Children Calling
Railway again
storm
lift {/realword_references}
{horror}Monster {/horror}
{realword_references}Horn
Shop Bell, {/realword_references}
{phantasy_world}Angels singing{/phantasy_world}
{realword_references}Sea shore
creaking maybe boat

Storm at sea
Sunshine rays. {/realword_references}

--

{misc}Pran Pracks (sic){/misc}
{realword_references}Bubbles
Bank Robbery Hast
{musical_term}Drums Bass{/musical_term}
Door Bells {/realword_references}
{aliens}Ufo{/aliens}
{interpretation>death}Dead man {/interpretation>death}
{realword_references}skab (sic) {/realword_references}???
??? {horror}girls getting raped
the well opening
buch (sic) squeakny(sic)
new world opening
death happens again
buck horn
little girls shaking
Mohammad's funeral
the holocaoust(sic)
gong (sic) o hell (like raw3(sic))
bodies being chucked /whipped
chansaw(sic) massacre – three
{misc}shingg(sic){/misc}
dungeons
people slaick (sic) is hell
no escape
{misc}pavat (?) blanc (?)
shno (sic)nuna(sic){/misc} {/horror}

--

{realword_references}water
change
jump

Bell{/realword_references}
{aliens}UFO {/aliens}
{sounds>description}scary {/sounds>description}
{realword_references}train {/realword_references}
{interpretation>piece}dream of the past {/interpretation>piece}
{realword_references}church
sea
opeining door {/realword_references}
{misc}chinsoar(sic) amsica(sic){/misc}
{realword_references}marriage {/realword_references}
{interpretation>piece}looking to god(sic) {/interpretation>piece}

--

{realword_references}Cars
something falling
the sea {/realword_references}
{misc}13 (the ride){/misc}
{sounds>description}BANG!{/sounds>description}
{realword_references}Doors opening {/realword_references}
{aliens}Futuristic sounds{/aliens}
{realword_references}children
train/tube
honking
a bell {/realword_references}
{phantasy_world}{sounds>description}magical sounds
{/sounds>description}{/phantasy_world}
{realword_references}water dirpping
waves crashing
Thunder-storm {/realword_references}
{musical_term}otherworldly(sic) sounds
slowly turns into an end{/musical_term}
End

--

{realword_references}birds, water, bell, pebbles, base, big bell, choir,
{/realword_references}{phantasy_world}angels, heaven,
{/phantasy_world}{interpretation>piece}broken, counting down, evil vs
good,{/interpretation>piece} {realword_references}children shop, wars,
post,{/realword_references} {aliens}future noises,{/aliens} {realword_references}bells,
{/realword_references} {sounds>description}calm,{/sounds>description}
{realword_references}end of storm, storm restarts,{/realword_references}
{musical_term}slowmo(sic){/musical_term}

--

{musical_term}it flaus(sic) from one section to another, occasionally suddenly.
sound fade slowly from one part to another{/musical_term}
{sounds>description}quite creepy. {/sounds>description}
{musical_term}very melodic in some parts, not at all in others
volume not constant {/musical_term}

--

{realword_references}- Big explosion{/realword_references}
-{aliens} sounds like you in space{/aliens}
{realword_references}- cars moving {/realword_references}
{phantasy_world}- Big bang {/phantasy_world}
{realword_references}- children talking.
- doors opening – bells ring
- crashes
- calm, silent music
- hear small voices
- birds
- river, water dropping
- water splashing
- waterfall
- a storm starts and then slowly calms {/realword_references}
{phantasy_world}- big bang again{/phantasy_world}
{musical_term}- then calms down & gets bigger again, then calms down again.
{/musical_term}
{aliens}- space type sounds again{/aliens}

--

{realword_references}Train

Car accelerating

cash machine

bell

gong

Door Creek

Splash

Child

Puddle

Elevator

Train accelerating, tracks

Triangle

Beep Car

Water, dripling (sic), Ruin

forest

car spraying in puddle

bees

lightening

chime

walking {/realword_references}

--

{realword_references}Creating rocking Boat Ocean

Smile for the Camera

{/realword_references}{appreciation>no}don't like this "music" {/appreciation>no}

{realword_references}Birds beautiful(sic) waves

train, Ben, Mahines(sic)

industrial{/realword_references}

{sounds>description}ooh!

crumpling Aaaargh{/sounds>description}

{realword_references}Actor

Machine

Choir

Gun {/realword_references}
{aliens}UFO {/aliens}
{phantasy_world}GOD{/phantasy_world}
{realword_references}Vuvuselasz(sic) fade in JCB Bed echo{/realword_references}
{aliens}Space invader Horn {/aliens}
{realword_references}rainforest crash{/realword_references} {aliens}Aliens{/aliens}
{realword_references}Ray Gun
{/realword_references}{/realword_references}{aliens}cyberdosis{/aliens}
{realword_references}crickets {/realword_references}
{misc}cool speakers {/misc}
{interpretation>death}MG42
Zone
Dead {/interpretation>death}
{realword_references}Sparkle
Church Bells{/realword_references}
{phantasy_world}Going to heaven {/phantasy_world}
{sounds>description}dung! {/sounds>description}
{interpretation>piece}Hypnosis {/interpretation>piece}
{realword_references}Cannon
Little Gril
Nan{/realword_references}
{misc}Da Da.{/misc}

--

{realword_references} –lightning {/realword_references}
{filmmusic}- harry potter {/filmmusic}
{phantasy_world}- ghosts
{/phantasy_world}- {interpretation>piece}Historical points {/interpretation>piece}
{interpretation>piece}- MI5 {/interpretation>piece}
{realword_references}- China
- Dinnertime
- war
- running
{horror}- Monster
{/horror}- Snaker(sic)

- Knives
- Hospital
- Children
- BUS
- Elevators
- London taxis
- piano lessons
- babies lullaby
- stars
- space
- shinging lights
- water dropping
- music, pop
- trains
- fairies
- {interpretation>death}- someone comitting (sic) suicide{/interpretation>death}
- sea, rough seas{/realword_references}

--

{appreciation>no}Music.
 Boring{/appreciation>no}
 {realword_references}Tractor?
 Railway.
 Scary Lazerquest sound.
 Church Bell
 The Undertaker
 Coffin
 Graveyard
 Emo
 Goth
 Some child shouting in the distance
 Waterslide
 Washing Machine
 Meditation
 Gong.

Motje. {/realword_references}
{interpretation>piece}A clear future.{/interpretation>piece}
{phantasy_world}The heavens {/phantasy_world}
{realword_references}The calm wilderness
NINE
Motje
Ploew of water
Rollercoaster
Wind Chime
INCOMING TRAIN!
Knockout punch
Charlie Albway's opera {/realword_references}
{misc}Ears{/misc}

--

{realword_references}Train or plane-crash? {/realword_references}
{filmmusic}Movie{/filmmusic}
{interpretation>piece}Desolate place {/interpretation>piece}
{aliens}Paranormal activity{/aliens}
{realword_references}baby calling
storm
break things {/realword_references}
{interpretation>death}woosh dead{/interpretation>death}
{sounds>description}Stops eerie {/sounds>description}
{realword_references}fairy dust
church medieval times
drip drop water
sea – wave – beach – getting rough
everyone dies car crash
{musicalinstruments}triangle{/musicalinstruments}
train – india – busy {/realword_references}
{alienation}weird again{/alienation}
{phantasy_world}froat (sic) up the heaven {/phantasy_world}

--

{realword_references}birds
rain
bells {/realword_references}
{sounds>description}spooky{/sounds>description}
{realword_references}explosion
chiors(sic)
dark street
babys
thunder storm
dreams
trains {/realword_references}
{filmmusic}action movies {/filmmusic}
{realword_references}cars{/realword_references}
{interpretation>death}dead
angles (sic)
light{/interpretation>death}
{musical_term}movement{/musical_term}
{realword_references}steps
sea
creaking{/realword_references}
{musical_term}tension {/musical_term}
{realword_references}explosion {/realword_references}
{musical_term}slow motion {/musical_term}
{interpretation>piece}memories {/interpretation>piece}
{realword_references}waterfalls{/realword_references}

--

-{realword_references} coach
- rouin(sic){/realword_references}
{aliens}- space
- aliens{/aliens}
{filmmusic}- scary movie{/filmmusic}
{realword_references}- church
- bird
{musicalinstruments}- instruments{/musicalinstruments}

- door being smalled
- nursury (sic)
- playground
- bus
- train
- traffic jam
- flowers
- oceon(sic)
- {misc}- kdy{/misc}
- trees
- babies
- sea shore
- beach
- waves
- fish
- gardener
- dog
- earthquake
- farm
- dessert(sic)
- Mermaids
- dolphins
- whales
- underwater
- sea shells
- stars {/realword_references}

--

{realword_references}Train

water

rubble

Emo{/realword_references}

{aliens}strange sound (alien) {/aliens}

{alienation}what's with that sound{/alienation}

{realword_references}car in the wet

child shouting 4 mum
bell
lift {/realword_references}
{alienation}space{/alienation}
{realword_references}horn of car
ringing of church bells {/realword_references}
{musical_term}huge ecko(sic){/musical_term}
{appreciation>no}that annoying sound again! {/appreciation>no}
{realword_references}marching
flute
earthquake {/realword_references}
{aliens}unearthly {/aliens}
{realword_references}dripping
sounds
water crack
tide of the ocean
fishing boat{/realword_references}
{horror}monster {/horror}
{realword_references}fish{/realword_references}
??? ???
{alienation}{appreciation>no}annoying sound that I'm sick of.
{/appreciation>no}{/alienation}

--

{sounds>description}
{musical_term}
- fast{/musical_term}
- eerie{/sounds>description}
- {realword_references}traveling(sic){/realword_references}
- {sounds>description}jumpy {/sounds>description}
- {realword_references} cave
- dreams
- storms
- danger
- rivers trickling away

- beaches
 - underwater
 - fish
 - submarine {/realword_references}
-
- {realword_references}- puddles {/realword_references}
 - {filmmusic}sounds – like in scary movie{/filmmusic}
 - {realword_references}bell
 - gates opening - squeak(sic)
 - car door shutting(sic){/realword_references}
 - {musical_term}high pitch sounds {/musical_term}{musical_term}
 - sounds generated on computerr(sic) – background {/musical_term}
- {realword_references}
- train
 - storm – bad weather
 - beep
 - backround(sic) sound
 - lasting sound – getting louder
 - or rusling(sic) – rain
 - singing
 - more rain
 - old door opening – turns into loude(sic) mower
 - breaks
 - churchbell {/realword_references}
-
- {realword_references}
- the train
 - a car through water? {/realword_references}
 - {sounds>description}sort of humming and tinkering
 - loud bangs {/sounds>description}
 - {musicalinstruments} gong {/musicalinstruments}
 - {appreciation>yes}sounds magical{/appreciation>yes}
 - {realword_references}baby talking

- a bus or train?
- a horn on a car? {/realword_references}
- {musical_term}goes quiet{/musical_term}
- {filmmusic}{interpretation>piece}a bit like fairytale music{/interpretation>piece}{/filmmusic}
- {realword_references} humming
- birds
- seaside, waves, shore
- a hoover or tractor
- something opening. that tinkering again{/realword_references} {sounds>description}
- a ringing (smooth) noise. {/sounds>description}

--

{realword_references}Water
train
thunder {/realword_references}
{sounds>description}spookey(sic){/sounds>description}
{realword_references}bells
clock
door
wind
words
organ
children
lift {/realword_references}
{aliens}paranormal{/aliens}
{misc}silence(sic) {/misc}
{phantasy_world}fairy dust/leaves ratterling (sic) {/phantasy_world}
{realword_references}cars driving in rain
sea
cranking {/realword_references}
{musical_term}quicker then stops & changes {/musical_term}
{phantasy_world}goastlike(sic){/phantasy_world}
{realword_references}door closes {/realword_references}

{phantasy_world}heaven like noises{/phantasy_world}

--

- {musical_term}fast, loud start to gentle rhythm
- echoes & bangs ring on
- low base with upper tune & rhythm on top {/musical_term}
{realword_references}human voices (girl young)
- train or vechal(sic)
- park to Underground{/realword_references}
{sounds>description}- ringing
- clinking {/sounds>description}
{phantasy_world}- mystical & dreamy{/phantasy_world}
{sounds>description}- wispy{/sounds>description}
{musical_term}- some pitch then changes onto another pitch
- fading end of sec
- slow dim to silence{/musical_term}
- {realword_references} then ends up on beach & drill noise{/realword_references}
- {aliens}spaceship noise & water{/aliens}
{realword_references}- still misty, stanry (sic) night thing {/realword_references}
{sounds>description}- bangs{/sounds>description}
{musical_term}- gradual incline to big, loud bang clabb(sic){/musical_term}
{musical_term}- then gentle again{/musical_term}
{aliens}- space{/aliens}
{musical_term}- slow & gradual end{/musical_term}

--

{realword_references}loud noise
rocks falling {/realword_references}
{sounds>description}alien type of ringing{/sounds>description}
{realword_references}church bell {/realword_references}
{filmmusic}sounds like it's from a scary movie {/filmmusic}
{sounds>description}wierd (sic) sound clashing ringing {/sounds>description}
park to underground
{sounds>description}changes setting after crash or ring {/sounds>description}
{realword_references}beach, {/realword_references}

{sounds>description}spooky noise, {/sounds>description}
{musical_term}louder and louder{/musical_term}

--

{realword_references}Plane,{/realword_references} {sounds>description}cling, crash,
{/sounds>description}
{aliens}alian(sic), {/aliens}
{sounds>description}sly, cling, {/sounds>description}
{realword_references}church{/realword_references},
{sounds>description}creepy{/sounds>description},
{interpretation>death}someone got killed,{/interpretation>death}
{realword_references}kids,{/realword_references}
{sounds>description}woosh{/sounds>description},
{interpretation>death} murder stops, {/interpretation>death}
{misc}feurnal(sic),{/misc}
{interpretation>piece}going somewhere,
fail, {/interpretation>piece}
{realword_references}sea{/realword_references},
{alienation}this has nothing to do with anything, {/alienation}
{realword_references}plane{/realword_references},
{phantasy_world}fairys{/phantasy_world},
{interpretation>death}{interpretation>piece}death again, death, everything has died,
as time goes by the earth rebuilds itself.{/interpretation>piece}{/interpretation>death}

--

{realword_references}Train going past, volcano, water,{/realword_references}
{phantasy_world}ghost, illuminous(sic){/phantasy_world}, {realword_references}till in
shopping centre{/realword_references},
{musicalinstruments}gong{/musicalinstruments},
{phantasy_world}goddes(sic){/phantasy_world},
{phantasy_world}precious, sword, beast following, ceremony, death, crystal,
{/phantasy_world}
{realword_references}baby{/realword_references}, {interpretation>war}capture, battle,
destruction, wasteland,{/interpretation>war}
{sounds>description}crash, {/sounds>description}

{sounds>description}ringing{/sounds>description},
{phantasy_world}heaven{/phantasy_world}, {phantasy_world}miracle{/phantasy_world},
{realword_references}sand, birth, rejoice,water{/realword_references},{
phantasy_world} hero, sacrifice, {/phantasy_world}
{realword_references} hidden spring, rainforest, native Americans, wind, storm, beach,
fog, island, ship, crashing, moaning , knife cutting,
transformation{/realword_references},
{alienation} impossible, strange,{/alienation} {interpretation>war}new, romans,
shieldbattle (sic) legion, funeral bells, should never have happen,
sadness{/interpretation>war}, {sounds>description}sacred{/sounds>description},
{realword_references}singing, choir,{/realword_references}
{musical_term}going/fading{/musical_term}

Letters

Case Study 2

Dear xxxx

`{workshop>like}`I have been doing some good course`{/workshop>like}` over a period of 5 weeks and `{def>ea>correct}`I have been learning about acoustic music. This also involves (sic) soundscape music and musique concrète (sic). `{/def>ea>correct}`We had to work in groups to create different things (sic) about this type of music. My group did a talk show to explain what the music is.

Dear person I don't know.

For the past 5 weeks we have been doing a workshop on electroacoustic music. We have mainly been studying soundscape and music concrète (sic). `{def>soundscape>correct}`Soundscape music is listening to a sound like it's a cinema clip picking out the different items or instruments used to make it. `{/def>soundscape>correct}` `{def>muscon>correct}`Concrète (sic) is listening to the sounds within (sic) a sound making it sound unnatural and unrealistic, not thinking about the items used but how their (sic) put together and the dynamics and different structures.

`{/def>muscon>correct}``{appreciation}`Overall I thoroughly (sic) enjoyed all the styles of music and would enjoy to do it again.`{/appreciation}`

Yours sincerely (sic)

xxxx (xxxx)

Dear Mum,

{workshop>like}My experience on this workshop has been amazing! I feel like I have learnt so much. It has been enjoyable because the teachers have been kind and they listen to whatever you say. If there was another workshop I would definitely go. They only came for 5 weeks, but it feels like months for the amount that I have learnt.{/workshop>like} We listened to soundscape music and acoustic music. {website>good}They have there (sic) own website that was easy to interact with. There was lots of information about the main theme 'electroacoustic'.{/website>good} In weeks 3 and 4 we created our own composition soundscape. {workshop>like}My overall impression of the workshop was magnificent! {/workshop>like}Hope to see you soon!

xxxx

Dear xxxx

In this workshop we have been learning about loads of different sounds such as real world sounds and music concrète(sic). {workshop>like}I thought that this was ok but abit (sic) boring but fun at sometimes. We did practical work that was fun.{/workshop>like}

From Claire xxx

Dear Mum,

{appreciation}I've been learning about a cool new thing. It's called Electroacoustic music. {/appreciation}{def>ea>correct}The music is not made with guitar or pianos. It's made with real world and Generated (sic) sounds. A real world sound is a sound we hear everyday and a generated sound is a sound make (sic) by computers. Eltroacoustic (sic) music is soundscape music and music concrète. {/def>ea>correct}Unfortunately, I was not hear (sic) for the lesson we learned about soundscape and music concrète, so I can not (sic) tell you what they are.{appreciation} What I've been learning about is Great (sic). I'd love to listen to it again.

{/appreciation}By xxxx

Dear xxxx,

for the past five week (sic) I have bin (sic) taking part in a soundscape workshop called Ears II. We stuedied (sic) music concrete (sic) and soundscape. [{def>muscon>wrong}](#)Music concrete is a group of computrised (sic) sounds put together to make a piece of music.[{/def>muscon>wrong}](#) [{def>soundscape>correct}](#)soundscape (sic) is Real life sounds grouped together to make a piece of music. [{/def>soundscape>correct}](#)[{workshop>like}](#)During this course we made our own piece of music concrete we got into groups and picked some sounds and made a piece of music we also alterd (sic) pitches (sic) used reverb, Reverse and fadeout(sic) I enjoyed it. =) [{/workshop>like}](#)

Dear xxxx

I have been learning about loads of different music it is about real world sounds there is music concret and sound scape music one is made up sounds and the othere is reall world sounds. We learnt about much more too but I'll tell you about it another time.

Love chaa, xxxx x

Dear xxxx

For the past 5 weeks I have participated in a workshop on electro-acoustic. We listened to many pieces of soundscape music and music concreté (sic) and learned about composers of each of these styles. We also composed our piece of music concreté(sic) and other people wrote a script to a talkshow explainin these musical styles. In case you are wondering,[{def>soundscape>correct}](#) soundscape music is like telling a story with sounds,[{/def>soundscape>correct}](#) [{def>muscon>correct}](#)where as music concreté (sic) is listening to the musical value of sounds, such as pitch, texture and rhythm.

`{/def>muscon>correct}{workshop>like}`Overall, it was a very good course, and I would be very happy to go to a similar workshop again.`{/workshop>like}`

Yours sincerely,

xxxx xxxx

Dear xxxx

For the past 5 weeks I have taken part in a workshop on electro-acoustic music.
`{workshop>like}`This workshop has been very informative. I have learnt about music
concrète and soundscape pieces. `{/workshop>like}`

`{def>muscon>correct}`Misic concrète (sic) – listen to the features of the sound/musical
value`{/def>muscon>correct}`

`{def>soundscape>correct}`Soundscape – listen to the sound for what it
is`{/def>soundscape>correct}`

I have composed a soundscape piece that included gravel, doors, dogs, fighting and a
spooky narrators voice that we recorded.

`{workshop>dislike}`Overall it was a very informative course, although I would not do this
again.`{/workshop>dislike}`

Yours sincerely

xxxx (xxxx)

Dear Sister

In this workshop we have been listening to real world sounds and have been recording
what we hear, also in a different way we tried to listen to the music.
`{def>soundscape>correct}`Soundscape music is made up of real world sounds put together
to make a peice (sic) of music. `{/def>soundscape>correct}{def>muscon>wrong}`Music
concrete is real world sounds edited to make another peice (sic) of

music. [muscon>wrong](#) In the last couple of weeks we have been working in groups to produce a role play. [workshop>like](#) I liked this workshop. [workshop>like](#)

Love

xxxx

xxx

Dear Mum and dad.

Over the past 4-5 weeks I have been learning about soundscape: if you [soundscape>correct](#) don't know what soundsape (sic) is lots of real world sounds put together but mixed up by a computer! You have to think past all of the real world sounds. [soundscape>correct](#) [workshop>like](#) It was very good but maybe some more practical would of made more fun!

[workshop>like](#) Lots of love xxxx xx

Dear sunny Jim,

[appreciation](#) Hi we have learnt the most amazing music ever called electro ecoustic (sic) music [appreciation](#) [ea>correct](#) there to elements this type of music and they are Realworld sounds and Generated sounds [ea>correct](#) we also went into more depth with realworld sounds and learnt soundscape and Musique concrète. [muscon>correct](#) Musique concrète was discovered by Pierre Shaffeur (sic). It is where you take real world sounds and edit the sound and add reverb, speed up the tempo etc. to look at the musical values, [muscon>correct](#) [soundscape>correct](#) whereas soundscape is not edited and you visualise the music as you pretend to be in the piece. [soundscape>correct](#) [workshop>like](#) Well it was really fun I hope you have an opportunity to experience this and cya you will enjoy it definitely. [workshop>like](#)

Dear Billy No Mates

We have learnt about soundscape and music concrete. [{def>soundscape>wrong}](#) Soundscape music is not edited and you visualise it. [{/def>soundscape>wrong}](#) [{def>muscon>correct}](#) Musique concrete is edited. Look at the musical values [{/def>muscon>correct}](#)

From xxxx

Dear Mommy

Over the past 5 week I have been attending a soundscape workshop called Ears II. [{def>soundscape>wrong}](#) Soundscape is a computerised piece of music that is composed together to make a piece of music. [{/def>soundscape>wrong}](#)

[{def>muscon>correct}](#) We also learnt about musique concrète which is a piece of music made up of real world sounds. [{/def>muscon>correct}](#) [{workshop>like}](#) It was interesting as I didn't even know this sort of music was existing in the world! [{comment>Mo>good}](#) The teachers explained it really well too [{/comment>Mo>good}](#). [{/workshop>like}](#) The activities were all filmed by a video recorder and then are watched back by the teachers. I think you would be interested and other people would be too.

I will write again soon

Love from xxxx xxx

Dear Jimmy-Jim

We have done a course called Ears II. [{def>ea>correct}](#) It is about soundscape music and musique concrète. This all comes under something called electroacoustich (sic) music. [{/def>ea>correct}](#) [{def>muscon>wrong}](#) Musique concrète (sic) is sound that are not edited by a computer and the sound are sounds that you hear ever day and are called real world sound [{/def>muscon>wrong}](#) and [{def>soundscape>wrong}](#) soundscape music are sounds

that have be edited by a computer these are called generated sound. [{/def>soundscape>wrong}](#)

Anyway got to go now

Cya later. Jimmy-Jim

Case Study 3

Dear Mum.

At school over the past few weeks, I have been studying soundscape music and musique concrète.

[{def>soundscape>wrong}](#)Soundscape is sounds that have been made in real life or generated.[{/def>soundscape>wrong}](#)

[{def>muscon>wrong}](#)Musique concrete is about sounds that have been mixed together to make one noise. [{/def>muscon>wrong}](#)I hope you take this on board and hope you have this course.

xxxx

Dear mum.

I have been to a workshop about music and sounds. [{def>soundscape>correct}](#)I have learnt about soundscape music which is sounds all joined together to creat (sic) a piece of music. Soundscape is real life sounds that you hear every day and a soundwalk is where you walk around and are more aware of the sounds around you rather than taking sound for advantage. So when you are next on a walk be quiet and listen to the sounds around you because you might find sounds that you didn't know were there or you have never heard before.[{/def>soundscape>correct}](#)

Dear Mum and Dad,

[{workshop>like}](#)[{appreciation}](#)I have been to a workshop about music with sounds. You may think it's a bit weird but once you get into it, it is quite fun. [{/appreciation}](#)[{/workshop>like}](#)[{def>soundscape>correct}](#)This type of music is called Soundscape, and is all about using sound around you to make a peice (sic) of music. For example say your on a busy street, you can walk around recording the cars going past, the people talking, street venders, anything, and then you can take those sounds and more

them around to tell a story and make an image in someones (sic) head.
{/def>soundscape>correct}

Dear barak obama, queen shakespeare (sic) and Mozart

{workshop>like}{appreciation}I have done a workshop with music. It was fun and enjoyable. {/appreciation}{/workshop>like}{def>soundscape>correct}We learnt what soundscape music is it is realworld sounds that create an image.
{/def>soundscape>correct}{def>muscon>wrong}Music concrete (sic) is a mix of generated and realworld sounds. {/def>muscon>wrong}We had the Part (sic) as role play. We acted out a scene explaining soundscape music. did you know that pop music contain some soundscape music? {workshop_aim>understood}So listen out for it in the music next time. Everything has rhythm – duration – pitch. Eg a train _._ _ _ _ _ and a dog _ _ _ _ _ _
_____{/workshop_aim>understood}

{aim_yes}{appreciation}{workshop>like}{workshop_aim>understood}I listen to music differently now and have enjoyed this workshop and hope that there is a second one.

{/workshop_aim>understood}{/workshop>like}{/appreciation}{/aim_yes}Yours sincerely

Dear xxxx x

Over the past few weeks I have been taking part in a musical workshop along with the rest of my class. {description_method}{def>rws>correct}We have listened to real world sounds, such as a dog barking or keys dropping{/def>rws>correct}, {def>gs>correct}and generated sounds, sounds that have been generated on the computer.{/def>gs>correct}{/description_method}

{def>soundscape>correct}We have also learnt about and listened to soundscapes and soundwalks. This is where you gather a load of sounds and put them all together to form a story.

{/def>soundscape>correct}{description_method}We have learnt about music concreté (sic). Me and my friends put on a roleplay to teach people about this music. One of the

famous composes (sic) of this music was Hildegared (sic) Westerkamp. `{/description_method}`

Love from,

xxxx x.

Dear xxxx,

`{workshop_aim>notunderstood}`I have been doing a workshop learning about music concrete (sic) this is where you listen to sounds and you can tell if they are real or not

Then you do activities about music concrete (sic) to learn more about it Electro-acoustic (sic) music is where you see whether a sound is made by a computer or if it is real world.

`{workshop>like}`Also you do an activity where you can do a talkshow about it, which is funny, some parts of this workshop are confusing, but others are okay. You may like it you my not it depends on whether you like music enough or not.

`{/workshop>like}{/workshop_aim>notunderstood}`

Dear xxxx,

I have in involved in a workshop that is about electro-acoustic music.

`{description_method}`We learnt about Peirre Shouffer (sic), musique concrète, sound scape (sic)music and the difference between realworld (sic) Sounds and computer generated Sounds. `{/description_method}`

`{def>muscon>correct}`Peirre Shouffer (sic) is the creator of music concrète. It is where you listen to the pitch, tembre(sic), length of the sounds and more.

`{/def>muscon>correct}{def>soundscape>correct}`Soundscape music is where the sounds tell a very simple story. `{/def>soundscape>correct}{not_quite_right}`A computergenerated

sound can turn into a real world sounds, but not vice-versa (sic).

`{/not_quite_right}`Your Brother, ???

xxxx

Dear xxxx,

[{def>ea>correct}](#)I have been to a workshop about music with sounds. This kind of music can consist of everyday noises that we take for granted. [{def>soundwalk>correct}](#)You can go on a soundwalk, which is where you take a recorder out with you while you walk around.[{/def>soundwalk>correct}](#)

[{/def>ea>correct}](#)[{def>rws>correct}](#)There are also things called realworld & generated sounds, realworld sounds are sounds made naturally [{/def>rws>correct}](#)[{def>gs>correct}](#)where ase (sic) generated sounds are made from a computer.

[{/def>gs>correct}](#)Once you have all of the sounds you want you can create a peice (sic).

[{not_quite_right}](#)I love hildergarder wildecamps (sic) train piece.[{/not_quite_right}](#)

Love

xxxx

Dear Mum

[{workshop_aim>understood}](#)[{appreciation}](#)Hi, I've been doing a workshop about music with sounds. It's called electrocusic (sic) music. It is when you take recorded sounds and put them together on a computer. There are 2 types of this music, and they are: [{def>muscon>correct}](#)Musique concrète (sic). That is when you are ment(sic) to listen to the rhythm(sic), pitch, duration and timbre. [{/def>muscon>correct}](#)[{def>soundscape>correct}](#)Soundscape music is were you are ment (sic) to create an image in your mind with the music. [{/def>soundscape>correct}](#)It's great![{/appreciation}](#)[{/workshop_aim>understood}](#)

xxxx

Dear Mother

[{workshop_aim>understood}](#)I have been to a workshop about Electro-acoustic music. If you don't know what this is, it is music with sounds. There are generated sounds, (made from a computer) and [{def>rws>correct}](#)Real-world sounds (that is heard in the environment)[{/def>rws>correct}](#). These sounds can be arranged so that they become peices (sic) of music. [{def>soundscape>correct}](#)[{def>muscon>correct}](#)There are two ways of listening to this kind of music; Soundscape: which forms an image in your mind (like a soundwalk) and Musique Concrète; Where you listen ot the pitch, duration, timbre and rythm(sic).[{/def>muscon>correct}](#)[{/def>soundscape>correct}](#)[{/workshop_aim>understood}](#)

Dear Sister-xxxx.

[{def>ea>correct}](#)Music concrete (sic) and sound scape (sic) is real life sounds put into a song. Pier (sic) Schaifer(sic) is one of the most famous compose(sic), as in the 1960's he has written a song purely on train sounds.[{/def>ea>correct}](#)

Another famous composition of which was called the great silence I think which was where you just listened instead of to a piano but to the sounds in the theatre
{workshop>like>suggestion_to_friend}I know you would like this so you should try this course.{/workshop>like>suggestion_to_friend} Love xxxx

(smiley faces along the border of the sheet)

Dear Sister-xxxx

In the course I have learnt about music concrete (sic) and soundscape.
{not_quite_right}Music concrete (sic) is a sound that has been made and soundscape is a song.

{/not_quite_right} {learning_outcome}I have learnt to listen to music in a different way. I have learnt to listen to it not as just how it sounds but to listen to the pitch, rythme (sic) and duration of the song.{/learning_outcome} {def>muscon>correct}We produced a talkshow, which included information about the history of music concreté(sic). Pierre Chauffeur broadcasted the first piece of music concreté(sic). {/def>muscon>correct}You listen to lots of different sounds. {workshop>like}It is a good idea to take this course.
{/workshop>like}

Love xxxx

(smiley faces along the border of the sheet)

Dear xxxx (Rewteey bro lol)

You learn {def>ea>correct}Music concrete (sic) and Soundscape which is electroacoustic Music {/def>ea>correct}and{def>soundscape>correct} a soundscape is what you find on like a walk and the sounds that you hear {/def>soundscape>correct}and {def>muscon>correct}Music concreté(sic) is a seriee (sic) of sounds which could be real world sounds or generated sounds and then you put them together and you can alter

them, like change the pitch, tempo, rhythm and do random stuff to it.

From xxxx

Dear mum,

In this EARS II work shop we studied electro acoustic music. This involved working with real world and generated sounds. At first we went through school recording sounds. Later we took some of the sounds and put them together to produce a soundscape. A soundscape is like putting different sounds together to tell a story. Where as the other group 'music concrète' did the same, walked around school recording sounds. But they took the sounds and changed the pitch, tempo and other things. This made there piece generate sounds where as our piece was real world sounds.

xxxx

Dear dad and xxxx,

You will never believe where I have gone, yes, your right, a music workshop.

It has been really fun, we found out about different types of music, you will never guess how many types there are.

I personally enjoyed finding out about soundscape music, oh, by the way, soundscape music is where you have recorded sounds all over the place and you put them together to make a music track.

You can also get generated music, where it has been generated on a computer and then put together to make a piece of

music, `{/def>gs>correct}` `{appreciation}` I prefer soundscape, because you use real life sounds from around where about you are and also from the environment.

`{/appreciation}` Lots of Love

xxxx xxx

Dear xxxx and xxxx.

These past 5 weeks I been learning about electro-acoustic (sic) sounds.

`{def>rws>correct}` There is soundscape which is music from what we hear into a sound. You can have a story behind it or people speaking. `{/def>rws>correct}`

`{def>ea>correct}` In electro-acoustic music there is real life sounds like bird and then there is generated sounds which aren't real like a zap. `{/def>ea>correct}`

I hope you hav (sic) learned something from this

From your best mate,

xxxx

Dear xxxx and xxxx and xxxx (...???)

`{comment>misc>useful}` I know a kind of music that you've listen to but won't knew that you have = Electric(sic) acoustic music. It's hard work (all words???) and not as fun as normal music. `{/comment>misc>useful}`

`{not_quite_right}` It is music made electrically from real life sounds `{/not_quite_right}` like a ??? and generated sounds I did a soundscape piece from real life sounds ??? the school then put them together.

From xxxx

Dear mum

[I](#) have been to an electro (sic) acoustic (sic) workshop and I learned about music concrète, soundscape music, real world sounds and generated sounds. [Soundscape music is a lot of real world sounds put together you get these sounds by going on a sound walk.](#) [Piére\(sic\) Shoffer\(sic\) first used trains in a music concrète piece and not many people enjoyed.](#)

[A real world sound is the clanking of metal or the bark of a dog](#), [but a generated sound comes out of computers like, a police siren or a school alarm](#)

[Love from your son.](#)

Xoxox

Dear xxxx

[This workshop on music with sounds is coming along nicely. It's a good place to work and stuff, but should include more fun activities in it.](#) [My fave \(sic\) band, Pendulum use generated sounds in their music and I would love to try using generated in Music concrete \(sic\).](#) [I think you should come along too!](#)

[Music concrete is all about gathering real world sounds and composing them to your own desire to make music.](#) [I think you'll enjoy it, give it a go.](#)

Dear Mum.

{description_method}In this workshop of electroacoustic music we did things like listen to real world and generated sounds and try and tell the difference between them, and the way to listen to them{/description_method}

We did Musique Concrete (sic) and Soundscape music. {def>muscon>correct}Musique concrete (sic) is real world sounds put together in a piece of music.{/def>muscon>correct} {def>soundscape>correct}Soundscape is music trying to tell you a story like going on a sound walk. {/def>soundscape>correct}

Dear Mummy & Daddy and xxxx

{workshop>like}I bet you have never heard of electroacoustic music, well you have now.{comment>Mo>indifferent} I have been learning about it music with Motje. {/comment>Mo>indifferent}It is actually alright.{/workshop>like}

{appreciation}It is music made electricly(sic), for example I did a piece based on a sound walk. I first went with some mates and recorded the sounds I wanted to use with a bigish recordy type thing. That was fun.

After that I went on the computers and used a programme called audacity to recompose the sounds and put them into my desired form. I wasn't really meant to use effects much but I did att(sic) the end to make it sound good. {/appreciation}

From,

xxxx

Dear xxxx

I have been on a course learning about soundscape & electroacoustical (sic) music & music concrete(sic). {def>soundscape>correct}Soundscape is where you walk around collecting sounds & you play them together, it makes a piece of

music. [{def>soundscape>correct}](#) [{def>muscon>correct}](#)music concrete, I don't remember a lot about but a man called Pierre Sofour (sic). [{def>muscon>correct}](#)[{workshop>like}](#)We had to do a talk show about music concrete (sic) which was extremely fun as I got to be with my friends & act (even if I didn't understand the music)[{/workshop>like}](#)

xxxx, [{workshop>like>suggestion_to_friend}](#)if you enjoy music I advise you to go on the course, if not you'll find it pointless.[{/workshop>like>suggestion_to_friend}](#) LI

Love

xxxx

Xxxx

Dear Chris, [{def>ea>correct}](#)I been do a course in school on electro-acoustic (sic) music which is music which is a mix of natural sounds and generated sound[{/def>ea>correct}](#). [{def>muscon>correct}](#)We made a musique concret (sic) composition. Musique concret (sic) is making and recording some sounds and then editing it artificially. [{/def>muscon>correct}](#)

Dear Mummy

I have been on a work shop (sic) about music. [{def>soundwalk>correct}](#)We listened to sounds and soundwalks which are when people walk around and record what they hear.[{/def>soundwalk>correct}](#) [{appreciation}](#)The music is good but goes on to long[{/appreciation}](#) [{workshop_aim>notunderstood}](#)[{comment>misc>useful}](#)now there is another type of music called music concretê (sic) but I don't no(sic) what that is. We also did a talkshow about music, that was brilliant simply because all we had to do was to make it up![{/comment>misc>useful}](#) [{workshop>like}](#)The course was ok but I didn't understand alot(sic).[{/workshop>like}](#)

[{/workshop_aim>notunderstood}](#)[{workshop>like>suggestion_to_friend}](#)If you want to go on the course you can but I probably would not come with you so have fun the talkshow is brilliant. [{/workshop>like>suggestion_to_friend}](#)Love xxxx

Dear John,

I did a workshop about music electro-acoustic (sic) music.

{alienated} We listened to lots of different music made of strange sounds and had to say what we thought of when we heard it. {/alienated} {def>soundscape>correct} We learnt what soundscape is, which is recording things and putting them together to tell a story in your mind. {/def>soundscape>correct}{def>muscon>correct} We also did music concrète, which was invented in 1948 by Pierre Schaeffer. He recorded a train noises and put them together to make a piece of music, listening to the duration, pitch and texture. {/def>muscon>correct}{comment>misc>useful} We learned the difference between real world and generated sounds, but if you listen to a generated sound (eg school bell) as a school bell it becomes real world. {/comment>misc>useful}{appreciation>no}{workshop>like} This was quite a good course but I don't like electro-acoustic (sic) music. {/workshop>like} {/appreciation>no}

Lots of love, xxxx

xxxxx

Case Study 4

Dear xxxx,

I would like to tell you about some music of which is composed with sounds. (I learnt this at a workshop.) `{def>ea>correct}` There are 2 types of sounds in electroacoustic music – realworld sounds (sounds you could hear every day), and computer generated sounds (like on transformers, those futuristic metallic sounds).`{/def>ea>correct}` There is also a part called `{def>muscon>correct}` Musique concrète, which you listen to the sound itself instead of what made the sound. It is split into tambre (sic), duration, pitch, and a few others I can't remember, `{/def>muscon>correct}` but go on their website ears2.

From xxxx.

Dear xxxx,

I know you are a dog and you don't speak (sic) english (sic) but in school I had a workshop about music with sounds. `{alienated}` I didn't know this music even existed. It was a weird mix of sounds from the real world and other dodgy ones.`{/alienated}` `{parrot}` We learn about Soundscape music and music concrep (still don't get the difference.) `{/parrot}` You would have made a great sound. `{workshop>dislike}` The best bit was recording. We edited music on this softwar that didn't work. (should have got an apple) we got info from a website that had bis gaps and colors that you couldn't read. The buttons didn't work. `{/workshop>dislike}` So I am going now. B.

Dear xxxx,

This workshop has taught us about music concrete and soundscape and what the difference is. Electroacoustic (sic) music is music played through electricity and uses no musicians. Sounds can be made into music by using certain computer software to modify it in order to make the music sound weird or distorted. For example a curry house's sounds get recorded then can be edited into music and the sound's (sic) made will not sound like the curry house.

From xxxx

Dear xxxx xxxx xxxx

In this course I learnt about music concrete & soundscape music. I learnt the differences between them & how to identify Real (sic) Sound & generated sounds. This course included Practical (sic) & mental lessons. So I learnt about both in different methods. So it was easy to learn. Music is music but some can come with sounds. From life but still have Rhythm, duration & pitch & one other (can't remember) It was taught by Mo who taught us music.

Cheers ma man. See you on Sunday for Footy.

Ya Man – xxxx aka .xxxx

PS Soundscape rules.

Dear xxxx xxxx xxxx

I have resently (sic) been to a workshop which has introduced me to new types of music such as soundscapes & music concrét (sic). We learnt that if you listened to music in different ways we would hear different things. {workshop>like}My favourate (sic) part of the workshop was when we got to go for a sound walk an then creat (sic) a soundscape with our recorded sounds{/workshop>like}. Hope to come & cu soon.

Lots of love

xxxx

Dear xxxx,

At school, we did an electro-acoustic (sic) musc course at school and I know you would be interested in it. {def>ea>correct}It is music made without guitars or pianos or words, but with real world sounds like birds or somebody playing ping-pong.{/def>ea>correct}

There is another type of music which is generated by computers but the sounds are difficult to describe .

{def>soundscape>correct}Composers gather their real-world sounds by going on sound walks and recording what they heard then editing it on the computers they have. I think you should research it, John. It sounds like your kind of thing.{/def>soundscape>correct}

From xxxx

Dear xxxx,

Haven't seen you in ages, hows(sic) life? anyway [{workshop_aim>understood}](#) Im (sic) writing to you about this new workshop I've been in. It is about working with sounds to create music. It's like music but generated on the computer. Some of my friends have made electroacoustic music, they took sounds from around school and made a recording. I was in this talkshow about music, although I was ill on the actual performance, ousps!! Anyway it was cool, bye[{/workshop_aim>understood}](#)

xxxx

xx

Dear Mum,

[{comment>Mo>indifferent}](#) Mo came to school to teach us about electroacoustic (sic) music. She is doing a PHD at your work. [{/comment>Mo>indifferent}](#) [{def>rws>correct}](#) First we learnt about real world sounds. That is where you here (sic) the sound in real life and it is not computer generated. [{/def>rws>correct}](#) We then learnt about musique concrete(sic) + soundscape music. [{def>muscon>correct}](#) Musique concrete(sic) is where you listen to sounds and try not to think of how it is generated but listen to the timbre, Rhythm (sic) + duration. [{/def>muscon>correct}](#) Me + xxxx recorded some sounds and made them into a musique concrete (sic). [{alienated}](#)Ours was pretty rubbish; it's harder to do than it sounds. [{/alienated}](#)[{workshop>like}](#)I had lots of fun and it was really interesting to learn about a new style of music. [{/workshop>like}](#)[{comment>Mo>good}](#)I hope Mo gets her PHD[{/comment>Mo>good}](#).

Dear dude or Dudess

{confidence}I write you this letter about real life sound like you I do not know about music but this is better than our normal music lessons because I don't get put down every 5 minutes by Miss xxxx [the music teacher] so I encourage you to try out this course as it is good and stops you from doing normal music lessons so it's a lot better. {workshop_aim>understood}{workshop>like}You also learn plenty on the course like the difference between soundscape and music concrète so its worth a go. {/workshop>like}{/workshop_aim>understood}{/confidence}

Dear xxxx.

{comment>Mo>indifferent}We had a visitor come to our school to teach us about Electrcoustic(sic) music. She came for a workshop. {/comment>Mo>indifferent}{workshop_like}I enjoyed it and learnt alot(sic){/workshop_like}, {workshop_aim>understood}did you know that you talking or walking through a bunch of leaves is a type of music? Its called Real Wold sounds. It has made me think because I now know that everything I do could be recorded an put into a song. {/workshop_aim>understood}{workshop>like}We also split up into groups I was in the roleplay it was so much fun!{/workshop>like} {workshop_aim>understood}We had to create a play where there were all different type of people with different tastes in music trying to choose one type of music that would be played in the concert, the idea of it was that we all had to take it in turns to describe what are music was and how it was the best for the concert. {/workshop_aim>understood}{workshop>like}It was great fun and if she comes again you will have to come!

{/workshop>like}Bye

Dear xxxx & xxxx

I have been on a workshop at school teaching us about soundscape music and music concrète (sic) it is kind of interesting, but I don't think i (sic) will want to do it again. [{workshop_aim>understood}{def>soundscape>correct}](#)We learnt that soundscape music was real world sounds lapped over each other[{/def>soundscape>correct}](#) and [{def>muscon>correct}](#)music concrete was real world sounds that were modified so you listen to the sound and not the sound source.

[{/def>muscon>correct}{/workshop_aim>understood}](#)[{comment>misc>useful}](#)I also found out that i was a really bad composer and can not be quiet for more than a minuet (sic). I know this because we went on a sound walk around the school and you could hear my voice on the recordings. [{/comment>misc>useful}{def>soundwalk>correct}](#)a (sic) sound walk is where you go on a walk with a recorder and use the recordings to make a sound scape (sic).[{/def>soundwalk>correct}](#)

I will see you soon.

Lots of love

xxxx

Xx

Dear xxxx

[{comment>Mo>indifferent}](#)In music this woman from De montfort (sic) Uni came to teach us about stuff. Lol! [{/comment>Mo>indifferent}{workshop_aim>notunderstood}](#)We learnt about music concrete(sic) (which I still don't get lol!) and other forms of electrocoustic(sic) (music using sounds and random stuff but no words or tune or anything like normal music!) music. One week we walked around school recording realworld sounds. All you could hear was Me & Fatty arguing!

`{/workshop_aim>notunderstood}{website>negative}`We then put the sounds together and used a strange website to research stuff! The website had very large gaps with weird buttons. `{/website>negative}`Anyway, bored now so going to stop. Cya later xxxx

Dear Mama,

In this last few weeks I have learnt a lot about Musique Concrete(sic) and Soundscape. I learnt a lot about this topic, however, due to the serious amount of revision I did, I forgot it al. I am sure you will understand the little details that I know... mmmmm...

`{def>ea>correct}`Electroaucustic(sic) music is a mixture of real world & generated sounds. `{def>rws>correct}`Real world sounds are sounds we make like when I sing.`{/def>rws>correct}{/def>ea>correct} {def>gs>correct}`Generated sounds are not in the environment and are made on the computer.`{/def>gs>correct} {parrot}`Remember: listen for pitch, duration, rhythm and timbre. I can't explain what these are but I'm sure Google can. Ja Ja.

`{/parrot}`Love,

xxxx.

Dear xxxx

`{def>ea>correct}`In the past weeks I have been learning about electroacoustic music, I am still not too sure what that is but I know that soundscape and musique concr ete(sic) are types of electroacoustic music.`{/def>ea>correct}`

`{def>soundscape>correct}`Soundscape music is where a person walks around with a recorder and records the sounds that are happening around this person for example sounds in a park or shopping centre.`{/def>soundscape>correct}`

`{def>muscon>correct}`Musique concrete (sic) is where a person has random objects, such as selotape (sic) and makes different sounds with them, after you have made many

different sounds, you can mash them up and cut bits out, and therefore change the song. `{/def>muscon>correct}{workshop>like}` It was very fun and I enjoyed it!

`{/workshop>like}{comment>Mo>indifferent}`Thanks Mo!`{/comment>Mo>indifferent}`

From xxxx

--

Dear xxxx,

`{workshop>dislike}{workshop_aim>notunderstood}`At my school we have been studying something called electroacoustic music. this is a workshop with Sounds that calls itself music even though it lacks instruments & notes two main things in music. personally(sic) I found it very boring and struggled to understand how its music and why anyone would chose to listen to it. I enjoy most music but this I found extremely painfully boring. Since this is not music, I don't see why it is in our lesons (sic). `{comment>Mo>bad}`I found that the person leading us failed to win the majority of us over. `{/comment>Mo>bad}`I found this incredibly boring!

`{/workshop_aim>notunderstood}{/workshop>dislike}`Love From xxxx xxx

Dear Mum

In these few weeks I have learn't (sic) a little or no new skills. I learn't (sic) that music has several types (I already knew). We went & recorded sounds also known as real world sounds. `{def>ea>correct}`Electrocoustic (sic) music contains both real world & generated sounds. `{/def>ea>correct}`Although I dont (sic) know much details as possible. `{appreciation}`I don't understand much but some tracks are 'OK.'

I s'ppose`{/appreciation}` `{def>gs>correct}`Generated sounds are produced on a computer.`{/def>gs>correct}`

Dear mum, I have been in a workshop about Music with sounds. [This](#) music has alot(sic) of different parts. [There](#) are real-world sounds which are sounds made by us and things around us. [There](#) are also generated sound (sic) which are made by a computer, [these](#) are played in music now to give effect.

In real world sounds – [music concrète](#) you listen to the actual sound (rhythm) instead of the thing making it.

Dear Mr. ??

Over the duration of my 5 weeks course I have learned [the electro acoustic \(sic\) music is a mixture of generated and real world sounds.](#)

[I](#) like this type of genre(?). My favourite artist is pundulum. I also like the variation(?) of electro acoustic music (sic) I prefer listening to the generated sounds since they are more technical and computerised the sounds are composed (?) and describe (?) a particular rythm(sic) or beat, this creates a good drum and base song.

Dear xxxx,

over the past few weeks, I've been attending a course on [electro acoustic music](#). Basically, its sounds that have been recorded (and some that have been generated) made into a musical composition.

I have learnt about 2 branches of electroacoustic music, [music concrète](#) (where you listen to the sounds, not thinking about where they come from) [and](#) [soundscapes](#) (where you also think about the sound source). [The](#)

whole thing rests on the idea that all sounds have timbre, pitch, duration and rhythm(sic), and so can be called music. [{/workshop_aim>understood}](#)

See you soon

xxxx

--

Dear xxxx,

[{/comment>Mo>indifferent}](#) I have had lessons with Mo [{/comment>Mo>indifferent}](#) & I learnt about [{/def>soundscape>correct}](#) soundscape that is basically sounds from out world put into a composition. [{/def>soundscape>correct}](#)

[{/def>muscon>wrong}](#)Then theres (sic) music concrete(sic) were the real world sounds are disused (?){/def>muscon>wrong}.

xxxx

--

Dear Mum

[{/workshop>like}](#)Learning about Electroacoustic(sic) music has been interesting. [{/workshop>like}](#)[{/description_method}](#)We went on a soundwalk around school, and then we edited those sounds, to make a peice(sic) of music. We then listened to them. It was different to the type of music we usually listen too (sic). [{/description_method}](#)[{/workshop>like}](#)We has lots of fun

[{/workshop>like}](#)Love

xxxx xxx

--

Dear Presedant(sic)

{workshop>like}{workshop_aim>notunderstood}At school i(sic) have been learning about music which you could stand still and hear it is a bit silly but it was good fun :D :) :/ ;)

{/workshop_aim>notunderstood}{/workshop>like}Lot of love

xxxx xxxx

xxxx

Dear Dad

In Music we learnt about {def>muscon>correct}music concrete(sic). This is were(sic) you listen to music, not the source but the pitch Duration and tombre(sic).{/def>muscon>correct} {def>muscon>wrong} Music concrete is where you listen to the background and where the music we were listening to, source{/def>muscon>wrong}. {description_method}We also did a role play where we decided what type of music we would have at the Demontford(sic) concert. Wether (sic) it be new modern chart music or sound scape and we had to show knowledge for why we wanted soundscape. {/description_method}{website>good}To find out the knowledge we used a good website which had lots of facts about soundscape and was presented in a nice and colourful way to make the learning part of the course enjoy.{/website>good} Me sounds were also good so that we could listen to what you were trying to explain what you were saying.

From xxxx

Dear Mum

We recorded real world sounds and then editted(sic) them into [{def>muscon>correct}](#)music concrète. Which is just real wolrd sound put together. [{def>soundscape>correct}](#)We listenned(sic) to some soundscape music. Which is real world sounds also put together.

But this time, it is made into a story.[{/def>soundscape>correct}](#) [{/def>muscon>correct}](#)
[{description_method}](#) When we recorded sounds, we walked, talked, used instruments, paper + other equipment. [{/description_method}](#)

Testphase 3 – Teacher Interviews

Case Study 1 (Beta Study)

Teacher Interview 1

Interview: Motje Wolf

Transcription: Motje Wolf

MW: What do you think about the course?

Teacher1: I thought it was very interesting, in fact it is a great idea, the whole concept is a great idea, uhm I think the resources that you brought in to the school were excellent and uhm I thought uhm the way... uhm the way the course was organised was excellent as well. My only reservation with the whole thing is that uhm it was a little bit too difficult for some of the children so, we pitched it wrong. What we should have done is perhaps uhm offer it to perhaps key stage 4 children or uhm some higher ability key stage 3. It might have been a useful project to have done with the year 9. So some of the year nines. Uhm although our time table uhm the time table organisation here with regards to my rota and who we get and when we've got ehm that would have been quite difficult to uhm organised in this school. Because we don't see every year 9 child you see. So it might have been better to have to have done it with the key stage 4 group.

MW: mhh, okay uhm what do you think about electroacoustic music?

Teacher1: personally?

MW: ja (laughing)

Teacher1: I thought it was very good. Uhm I don't think it is marketed particularly because you know even if you switch on Classic FM you can't hear any of that.

MW: (laughing) no

Teacher1: Sooo, uhm you know if you know if you want it's not as accessible I would say uhm but now I think some of it is brilliant I mean even if you want to go to an electroacoustic evening uhm and you've got on the internet you would be limited as to what's available for you to go and listen to. But now as a, as a genre I think it's uhm quite exciting really and it's uhm to be honest with you it's uhm it's a genre in music that we don't use enough of uhm with regards of the teaching of music and with regards to the National Curriculum anyway. And I do uhm the only thing that EdExcel have done in the past uh that has slightly touched on it uhm is new directions the uhm area study 2, if you know anything about key stage 4 music, do you...

MW: uhm

Teacher1: GCSE and excel course uhm up to this year have uhm had there's four area studies, one is area study 2 and in there is 'new directions in music' and they touch on it.

MW: ah ok, now I get it.

Teacher1: ... they touch on it. Uhm uhm they look at serialism and minimalism and they look at uhm electronic music and experimental music

MW: but that's only a small part

Teacher1: that's only a very small part. But with regards to the general national curriculum I don't think it's in there.

MW: And uhm, that's actually touching this - do you think it's important to teach electroacoustic music?

Teacher1: Yes.

MW: Why?

Teacher1: I think it's important the kids are made aware of all styles.

MW: and do you think that you can benefit from electroacoustic music in a special way? Or do you think it's like the same benefit you get if you teach about opera or about Sibelius or other stuff you teach about?

Teacher1: Uhm I think it has its equal value. It has equal value to everything we teach really.

MW: and would you like to teach about this to your students? If you do next year, would you, would you change something of your lesson?

Teacher1: (raises voice interrupting) Uhm it made me realise that we don't include enough of it. By, by what you've been doing. Uhm it means some of the examples you've been playing, some of them were quite new to me. I recognised a couple of them, but the rest of it has been quite new. And it's made me think you know there's a lot more out there that we could involve in the curriculum

MW: If you got a complete finished 'ready-to-go' curriculum for electroacoustic music. What would you expect from that?

What would I need to provide for you that you can go in your class and teach it?

Teacher1: Oh right. Well I'd need, I'd need uhm I'd like the listening examples. Uhm I might... sorry (noise) on my ipod or on a CD you know on a CD I'd like you know the listening examples made available and then I need information about how the stuff's been composed and who's composed it. Something about music itself. How it's been constructed, how it was written, how it was put together perhaps in a studio would be useful particular as we do teach music technology here. And that is one of our new areas that we've gone into uhm if you like one of the new subjects that we have implemented. Uhm in this college in the last 12 months. So it would be useful to find out how the music is actually been developed,

(disturbance)

MW: Do you remember the website I showed? This should be a big learning environment at the end of the project. Where they can get all the things that you actually mentioned you need. Uhm could you imagine to use this in school?

Teacher1: Yeah, oh yes if it was made available definitely.

MW: And what do you think in general about e-learning in school?

Teacher1: It's useful, very useful

MW: Do you use it here?

Teacher1: Yes we do uhm

MW: What do you use?

Teacher1: we currently got uhm John on a GTP course at the moment, so uhm we've included, we have used a lot of his work. yeah. uhm are you going to let me have some of your some of your resources then?

MW: Yes, yes

Teacher1: at the end of the project

MW: yes, when it is finished it will be available for every music teacher, who wants to teach it. So that's...

Teacher1: Oh right!

MW: So that doesn't cost anything

Teacher1: (at same time) throughout the country you mean?

MW: Yeah everyone

Teacher1: well that's fantastic

(...)

MW: Thank you very much, that's it - except if you want to add anything.

Teacher1: no I don't think so... I mean I regret in some respects uhm not spending a bit more time with you to start with. To understand to fully understand what the project was going to be. Because in some respects it would have been better for you to have had uhm some key stage four kids to work with. I think you would have had a better response.

MW: hmm

Teacher1: a more mature response. Uhm because a lot of these key stage 3 kids say to me always 'it's so hard, Miss, so hard ever so hard. The Music is really hard' and it's simply because they have never heard it before. I mean they would not have heard of anything like that in a primary schools. Well, these are year 8 kids and they have only been in this school for what 18 months. So it's all very new to them. But uhm I also think that because you have thoroughly (slowly??) immersed them in it you have engaged them in something that they want to know a bit more about. And that's what it is about. You know, it's dipping their toe in the water really.

MW: Yes, that was actually the aim of the project.

Teacher1: yeah so that they go out there and they are they'll want to know a bit more about it now. Because you introduced them to it.. So in that respect it's been very positive and extremely valuable.

Case Study 2
Teacher Interview 2
Interview: Motje Wolf
Transcription: Louise Rossiter

MW- But I can explain everything on the sheet anyway. So its basically, I'm getting your data in this recording, but you are allowed to have access to this data, so at any point of my research if you think, oh what did I actually say during this interview, I will show you...

TEACHER 2 Right Ok...

MW- And you will also be able to see the outcome of the research.

TEACHER 2 Good, Excellent.

MW- And you can withdraw your data at any point of my research. Which will be bad for me, but its your right to do it?

TEACHER 2 Not a problem at all.

MW- So, that's everything... So thank you for this time.

TEACHER 2 That's alright. That's ok, that's alright.

MW- Did they actually say something ... like the kids from the class? Did they...?

TEACHER 2 I think they enjoyed it... It was a much different experience, they'd never done anything like it before... I mean it was quite hard for them, the concentration involved inevitably- Because we are looking at the same things over and over again. I mean I think sometimes... I mean, the lads who you where getting to lead ... they... they..... I suppose they haven't got the character ... I mean they are not teachers and they didn't gee them up enough, I don't think, and say oh listen to this, what do you hear here? I think if they had done that more they would have got their attention more because that's what children are like aren't they? Especially year nines who are kind of very laid back. But I mean you are lucky that you had a good group of pupils, that made the difference. Had you had one of my other groups, that would have been a different matter. I think you would have had problems with discipline, not paying attention, me having to tell them off. But the nature of... the type of group where very good, they where very responsive really... they where really quite good.

MW- Yeah I really quite like them, I thought they where quite interested in the topic.

TEACHER 2 Oh they were, especially the boys- they were very, very good. I was impressed with them.

MW- Do you see any difference normally between boys and girls in this class?

TEACHER 2 Erm... what, you mean as from a learning point of view, or listening... or...?

MW- From like, in giving something... from say taking part...

TEACHER 2 I think the boys at this age... especially if they are quite strong, and quite bright.... the ones you had, who were always asking questions.... They seemed to take the lead- they are more confident about what they are going to say, and they are not bothered if they are wrong... but usually, actually those boys actually have something good to say and they are actually very, very astute to everything around them.

MW- And if you compare the learning results in tests or whatever...

TEACHER 2 When they are doing assessments?

MW- Yeah...

TEACHER 2 They are actually very good- that particular group of boys again- they are quite talented. Sometimes don't stay on task all the time... they actually veer off task sometimes, but, on the whole, their progress in music has been good because they're quite keen and they want to do well.

MW- And if you compare boys and girls?

TEACHER 2 Right the girls are... they work in a different way. They work quietly, and they get good results. But they are often... a couple of girls in that group are... quite exceptional. The boys work openly... And they let you know... they want you to hear the work all the time- which is fantastic from my point of view... Its really, really good. So really, you are looking at ... and within that group itself... let me look at my paperwork...to decide exactly how they have progressed. I mean you have got some really low ability children in that group as well, as you gathered. I mean I've got quite a few level sevens, but they are very, very able girls. The quietest ones who never, ever spoke to you... they never said anything to you at all. They sat there- so they've got the seven C's and I've got one boy at level seven... The other ones- the mixture of boys and girls- level sixes... So that's the next sort of tier. And the rest are level fives... low level fives... so they...

MW- These levels are like abilities? Or is there...

TEACHER 2 At the end of a key stage they get a level. So you're expected in all subjects... well especially English, Maths and Science... they are all expected to get a level five.

MW- Ok...

TEACHER 2 Music is slightly different because there are exceptional skills... perhaps because its different... if they are very good at music , they will get a better level because of their ability- so if they are grade three piano already, they should be getting level six stroke level seven already- so that's how the levels work , so...

MW- Ok... what do you think about the whole course I did with them?

TEACHER 2 I mean its quite... it's quite intriguing. I mean I wouldn't say that I'm interested in it by any means at all. It's just different. I think you have to have a really strong interest to go down that line. I'm interested in sort of skill based stuff where the children can get their hands on and they can see things happening. Yes, I can see the advantage of doing the computers... the music technology. And it's great for if we are doing any work on media, film extracts, story boards... It would be brilliant. Because they can extract those sounds. Or they can get the combination of the real sounds to the manufactured sounds... So yes, I see its use.

MW- Ok, and what do you think about having Electroacoustic music in the Curriculum?

TEACHER 2 Hmm... I think that would be very... I would probably do it ... a very small snatch of it... but it would have to be linked to something that would interest the children. So I would have to maybe extract a topic. But it would have ICT based to match with my National Curriculum outcomes... and it would have to be a really interesting subject... so for example, for boys, I'd have to get some sort of topic that has to do with maybe cars and machines... and they could take that electric music and put that within their work if they had to produce a sort of two minute film strip that represents the cars through electric music and maybe with their own instruments as well. So it could be combined... I would imagine.

But it certainly wouldn't be a big chunk of it. We haven't got the time. We've got one lesson a week. We've got to cover everything. We've got so much...

MW- That's the problem...

TEACHER 2 Yeah, you know yourself... I mean, Listening, composing... assessments everything... There is too much to cram in within a year.

MW- But if you had the task to teach your pupils about electroacoustic music... would you... how would you do it? Oh sorry, I need to ask you again... So this website will be available online at one point when I'm finished with it

TEACHER 2 Yeah, I see.

MW- Not if... when! So this should go along with a teachers pack... like a pack for teachers with material to teach, and what would you expect from such a website, from such a learning environment to use it in school properly?

TEACHER 2 Is it how I would use it?

MW- How, and what would you expect... what needs to be in that you to use it?

TEACHER 2 Right, I think the way it was introduced was really good- whether you have the extracts- what's real music? What's that there? So if its been planned properly, I should imagine that what you've done, is enough for me to get it across to children in the first lesson.

So straight away they'll know there's the difference between the electronic music and the real live sounds etc... and from there, its all about the listening, the listening to sounds, and being able to identify them. So I think it would sharpen up their listening skills in something that's very unusual- something that they've never done before, and then comparing it to ordinary, musical... music sounds- whether its orchestra music, whether its pop music. I think identifying the differences would be really, really good.

And then when they go onto their own environment, when they're either doing their games, they can actually listen, they can actually then think... oh, that's actually not real music...that's actually electric music. So I think it would make them slightly more aware what the differences are...

MW- Yeah. Actually what was underlying the whole course was a complete listening training. That's what the core thing was... So we didn't communicate that because we didn't want to make that so obvious... because it sounds a bit boring, like – oh you do listening training.

But, that was actually very successful when I see all the results from the questionnaires...

TEACHER 2 Oh fantastic! That's good!

MW- Also the interviews from last...

TEACHER 2 And they did listen... they where actually quiet. When they had to identify the sounds, they actually... did... listen...

MW- Yeah, I had one result from one student, who said that after the second session where we did this reduced listening- where we listened into a sound and pitch and

rhythm and duration- that their listening was changed after it , and she went through the corridors and could not stop listening to rhythms and pitches, so that was actually very, very, very interesting...

TEACHER 2 Oh wow! That's a success story then isn't it?

MW- Definitely yeah...

TEACHER 2 That's Brilliant! Yeah- that's good.

MW- Do you have any... when you say you teach listening in school, do you have any strategies for that? Do you...How do you do that?

TEACHER 2 Right I don't... Sometimes I'll just put one piece of music on and I'll say 'what do you hear?' So this is where this other listening comes in, and the children will say instruments, they'll say I can hear this loud sound or.... Sometimes we'll then talk about, we talk about the elements of music, you know, the dynamics, the pitch, the range etc. and some pupils who may touch upon it, but then I'll start to direct them. I may listen to music specifically for texture sounds and dynamic range , so they don't talk about instruments, they don't talk about anything else So I identify what do they need to listen to? Why are they going to listen to it? Are they taking that to their own learning? So really, I suppose it's a specific listening I tend to do.

MW- And how much in percentage is that of the lessons?

TEACHER 2 . Not a lot... Not enough... because it's the time. In our lesson we've got to get through twenty points- so we've got what, less than 50 minutes to get through twenty points... your introduction, whats the focus of the lesson, the objectives, the main part , then doing the work, the summary, end of story. So listening...

They do do a lot of listening, I must confess, when they are listening to each other. Because I say to them 'what would you say to that pupil that's good about their piece?' Or, how would they make it better. So they are actually continuously asking or listening and saying 'this can be done better if.' So yeah, I do encourage them to do that. So I suppose it is happening in different ways.

MW- I was actually quite impressed with your music lesson when I was sat in the back row. I really enjoyed... That was really, really good to see how many people really got involved in that. Although I guessed that nobody can... just a few people really can play piano

TEACHER 2 Which one was that then?

MW- That was the one with the frère Jacques on the keyboards

TEACHER 2 Oh right... Oh right, Ok then! Yeah alright. Yeah, they are very good. I

mean even the less able can do ... I try to make them... I try to do something that they can all do... that they can all access... so that they can come and enjoy music rather than say I don't want to do music. Which I always hate when it happens.

MW- What do you think about e-learning in schools?

TEACHER 2 Brilliant. I mean they are starting to do it a lot now in our school. Parents are now being introduced to it. They had another training course for the maths site last night. There are ... I think there are huge advantages, *but* it doesn't access all pupils because they don't all have internet. So that's a big minus at the moment.

Its as though there's this thing that everybody has to have computers- there are a lot who still don't have them at home. So it's very good for pupils who have access to them. That's a good learning tool . And they can access what they want, or what they have to- so if they're told they have homework they've got to do, go onto this site... they've got to do it there. But I don't know what the pupils do who can't get any access.

MW- Are there any plans to use e-learning in music here?

TEACHER 2 Not at the moment, because there are so many other things to do. I'd like to think it could be done to sort of back up what I'm teaching. Its all to do with time, cost and... its getting something together. It would be lovely... it would be brilliant to have a e-learning programme... someone said to me 'here's a e-learning programme, there you go. I'd put it on and say, right, we're going to use it. But I just feel I haven't...

MW- So there's potential for EARS II then...

TEACHER 2 Yes, potentially... there you go... I mean I've just not got the time. I mean [the community musician] who's coming in to do the work with the... that's been done because I physically have not got the time to learn how to use a very complicated software program. Had I had time, if I was given a week off, a full weeks training, I would learn it, because you're accessing it all the time. Its like everything, it takes time to learn, but you need to have that consistency.

He came in a few weeks... a few months ago. I probably access Ableton, but can I remember would to do with it? No. Because I haven't used it since. I haven't had time. So its all time constraints more than anything else. And more and more now as music teachers, you don't just teach small things, it's a whole range of things now... and your expected to learn and learn and learn...

MW- Yeah, its also if you read literature about pedagogy education problems, they always say that the role of a teacher is switching from being a music teacher, or a musician with children to being a technician. So...

TEACHER 2 Yup.

MW- As soon as you have music technology, so as soon as you teach music technology...

TEACHER 2 Yeah, I mean that's the thing. My learning... of technology has had to go way up. I've really had to look at it. Especially this year... because that's one of my developments I'm doing at the moment... as part of my improvements.

MW- Good!

TEACHER 2 I mean, even using a whiteboard scared me to start with. I mean I thought oh...

MW- Me too...

TEACHER 2 It's the best thing yet. I don't... I don't use the software programmes well enough I don't think. I've got to sort that out. You know, my presentation of lessons I don't think is as good as some teachers. But they have five lessons with one class, I have twenty classes, twenty one classes. And that's where the difficulty comes in...

MW- Yeah...

TEACHER 2 I'll get better...

MW- Just checking to make sure I've covered all the questions... That's it...

TEACHER 2 Oh fantastic!

MW- Thank you very much!

TEACHER 2 Not a problem, that's brilliant!



Lesson Plan Workshop EARS II - Introduction

Time	Duration	Aim	Content	Method	Who?	Material
						Camera, Video tape, Tripod, Flipchart with “Welcome to the EARS workshop” Sounds on CD blu tac
2:00	05	Class knows us. We know class. The class knows what’s going on.	Introduction people Introduction of the project	Self introduction Short talk about the EARS project	Motje	Prepared flipchart
2:05	15	Getting basic data	Questionnaire	“Please fill in this questionnaire.” Filling in together.	Motje	Questionnaire
2:20	10	We’ll be working with them for 5 weeks in piece and can always refer to the communication rules we have agreed about. (learning contract)	Communication rules: <ul style="list-style-type: none"> - no mobile phones - no talking off topic - if you want to say something, please raise your hand - listen to the others - don’t interrupt someone - no talking when music is played 	Answer to my question: “We will work together for the next 5 weeks now and therefore it is important that we agree about how we actually communicate and behave in this classroom. I’d like to write down some rules. Which rules do you want to have?”	Motje	Flipchart paper, Flipchart pen



2:30	10 (6 min piece + 4 min writing)	I get their first response to e/a music.	Please write your name onto the paper. I will now play a piece to you. Please while you're listening, write down everything what pops into your head (and is related to this piece). After the piece is finished, you'll get a few minutes to finish your writing. You can't do anything right or wrong. It is NOT a test. <i>Collect the paper</i>	Listening to a piece of electroacoustic music and writing down a response	Gez	Plain paper CD CD player + loudspeakers Gilles Gobeil - Entres...
2:40	1	Transition	Thank you very much for this. Now you have heard something what is called electroacoustic music, that was probably a little bit confusing. This music uses sounds and Jen will tell you now more about sounds.		Gez	
2:41	2	Students know difference between real world sound (rws) and generated sound (gs)	This is music that uses sounds instead of musical notes and instruments. Some people call it therefore sound-based music. Have you ever listened carefully to sounds? I'd like to introduce 2 types of sounds: rws and gs. A gs is a sound made with the help of technical equipment, for example with a computer and	Short talk with sound examples		2 sounds (1 rws, 1 gs)



			sounds like this. (play sound) A rws is a sound which is related to the real world. This can be an everyday-life sound (play sound) or something which is related to a real-world situation (e.g. a mobile phone ringtone is technical spoken a generated sound, however if it happens to be in an everyday situation it is a rws).			
2:43	10	Making them aware of listening.	Quiz: listening to rws and gs	<p>10 sounds. One sound is presented at the time. Students have to answer: 1) rws or gs 2) if rws: what is it?</p> <p>Class divided in two groups. Sound is played, the group that raises hand first may answer. (If a group raises the hand before the sound is played or finished, the other group gets a point.) If wrong the other group can try. If no one knows, they get hints. After guessing the sound is played again.</p>	Gez introduces quiz and plays sound files	Rws from Leicester Gs Sounds on CD
2:53	1	Finishing the quiz	And the winner is...	Applause to the winning	Gez	



				group		
2:54	4	Familiarising the concept of a soundwalk (i.e. referential listening)	Soundwalk File	Play a soundfile		Soundwalk on CD
2:58	11	Understanding the concept of soundwalk (i.e. referential listening)	Discussion about real-world sounds and their meaning	Discussion	Motje	
3:09	1	Transition, Finishing off	What we've done so far: We have listened to electroacoustic music and to a lot of sounds. We know what a rws is and what a gs is. Next week we will look closer into those sounds and what you can do with it for making music.	Short summary:	Motje	
2:10	5	Data; we know what we have to change for the future.	Feedback We always try to get better and not to be too boring for students. So I'd like to get some feedback from you. That's actually quick and easy. Everyone get's a pen and may draw three dots on this flipchart. Positive is in the middle, negative is at the outside of the circle. I know there are four fields, but you have just 3 of these points.	Target feedback: 4 fields: 1) I enjoyed today 2) This lesson was interesting 3) I'd like to know more about this music 4) I'm not so sure what all of this is about(+/-) Students are allowed 3 points and can vote on a scale of plus and minus.	Motje	Prepared flipchart Thick felted pens



Lesson Plan Workshop EARS II - Session 2 ‘Musical Value of a Sound’

Time	Duration	Aim	Content	Method	Who?	Material
2:00	2	Smooth start of the lesson, Students know the task and are able to prepare for it over the next weeks.	Hello. We will be dealing more with sounds this week, but before we start, I'd like to mention the following: This project is part of Motje's research, so we need somehow to see, what you've learnt at the end. That means in session 5 we will ask you to write a letter to an imaginary friend to explain what you've learnt over these weeks. Don't worry, it's not a test, if you don't know anything it's our fault.	talk	Motje	
2:02	5	Students know what we've done last week.	Link from last lesson. Last week we learned the difference between the 2 types of sounds, Real world sounds and generated sounds. Can anybody tell me what a RWS/GS is? Can you give me an example?	Ask if they can remember what a RWS is and what a GS is and ask for example. Hands up if you can tell me. Correct if wrong.	Motje	



2:07	15	Students know of the main parameters (musical value of a sound) eg. Pitch, duration and rhythm	<p>When you listen to a sound, what can change? Is it a low or high sound? Is it long or short? Does it vary or is it constant from start to finish?</p> <p>Guide their responses to identify the variable parameters, Pitch, duration and rhythm.</p>	<p>Short talk and discussion</p> <p>Play 2 example sounds, the same sound but one will be low, long and vibrato. The other, short high and constant.</p> <p>Ask students to identify the differences. Hands up.</p>	Gez	CD of 2 examples
------	----	--	--	---	-----	------------------



2:22	10	Students can identify the main parameters (musical value of a sound) eg. Pitch, duration and rhythm.	<p>Transition, introduce 'reduced listening'</p> <p>I want to introduce you to a way of listening that helps us identify the musical values of a sound.</p> <p>(play track 1)</p> <p>Does anyone recognise the sound?</p> <p>Reduced listening is an artificial listening technique. It is not how we usually listen to sounds. It requires you to forget what the sound suggests or what it means and listen to the sound itself. If we play a sound over and over in a loop it can help us hear beyond the sounds meaning and source. We can hear into the sound and analyse what is going on within it. We can identify its musical value.</p> <p>I will play the same sound again but looped. Listen carefully, forgetting the source and meaning of the sound. Instead, think about the musical values we discussed</p>	<p>Short explanation.</p> <p>Play a sound that they will recognise once. Hands up if they can describe the sound.</p> <p>Play the same sound on loop. Ask them to describe the sound without mentioning it's meaning or source concentrating on the parameters discussed earlier eg. How long, how high or low, how it changes and any rhythm within the sound</p> <p>Ask what they noticed about duration. One long sound, lots of little sounds or a mixture?</p> <p>Ask what they noticed about pitch/es</p> <p>Ask what rhythms they noticed.</p> <p>How many layers? What</p>	Gez	<p>Track 1. Single train sound</p> <p>Track 2. Looped train sound</p> <p>Plain paper and pen for each student</p>
------	----	--	--	--	-----	---



2:32	10	Students can identify the main parameters (musical value of a sound) eg. Pitch, duration and rhythm on their own.	<p>Explore 'reduced listening'</p> <p>We will now listen to some sounds. You may recognise the sounds but I want you to ignore any meaning it has for you. Like with the last example, I want you to analyse the sound and describe its musical values. This is not a test. It is so you can all have a go at reduced listening and to see what you can hear within these different sounds.</p>	Individually listen to and analyse 3 looped sounds		<p>Plain paper and pen for each student.</p> <p>CD of 3 looped sounds, same sounds as last week</p> <p>Ping pong</p> <p>Power up</p> <p>Leicester Market</p>
2:42	10	Students get feedback on their impression to clarify possible mistakes and to round the session off.	<p>Discussion of analysis</p> <p>Ok, we have heard the sounds, would anyone like to tell me what they wrote for the first, (second, third). Does everyone agree, if not, why? Has anyone got anything else to add to that.</p>	Ask students for their ideas on each sound. Make a list and discuss them with the class.		board and pen



2:52	5	Finishing off	Summary Quick tour through the tutorial reduced listening, to recap what we've done in this lesson Mention soundscape and introduce Musique concrète, so they know what this is.			
------	---	---------------	--	--	--	--



2:57	5	Gathering feedback on this lesson	Feedback Sheets	<p>Please fill in these feedback sheets before you go:</p> <p>? / bag / bin / what I also want to say...</p> <p>? = What questions are left, what haven't you understood?</p> <p>Bag = that is, what I take away from this lesson, that is, what I will remember in a week</p> <p>Bin = that was rubbish, I didn't like that</p> <p>What I also want to say... = misc. comments</p>		Feedback sheet
2:02	10	Sorting group for next lesson	Game to sort the groups	Fruit Salad, Cherry, Apple, Banana, Orange	Motje	



Lesson Plan Workshop EARS II – Session 3

Material: 3 Cameras, 6 Video tapes, Tripod, sheets, material for group leaders, computers (Mo's and MTI laptop), portable audio recorders, SD cards, cameras, sounding objects, card reader, paper with group names

Group leaders: Steve: Soundscape composition group; Adam: Musique Concrète composition group, Gez and Motje the other 2 groups.

At 2:35 the introduction to Audacity starts. Steve and Motje swap groups for this and Motje explains Audacity, while Steve watches Motje's group (if necessary, maybe teacher can help out as well, then Steve could stay).

Time	Duration	Aim	Content	Method	Who?	Material
2:00	05	Class knows what will happen in this lesson.	Hello, introduction of people, introduction of task	4 groups in 4 corners of room	Motje says hello to everyone, then each group leader with their group	Task, sheet per person
2:05	30	Groups start working, groups find information on EARS II website	Soundscape Role Play: Soundwalk, H. Westerkamp Musique Concrète Talk Show: tutorial start, reduced listening, Pierre Schaeffer	Individual working on computers, maybe in pairs	Gez & Motje; after 15min Gez stays in room	Computers, Website address
2:05	15	Groups start working, groups find information on EARS II website	Soundscape Composition group: Soundwalk, (H. Westerkamp) Musique Concrète Composition Group: Tutorial start, reduced listening, (P. Schaeffer)	Individual working on computers, maybe in pairs	Steve & Adam	Computers, Website address



2:20	15	Composition Groups have sounds to work with, have access to start to think about this music in different way	Soundscape Composition group: Soundwalk in the school and on the courtyard. Task for soundscape group to watch out for sounds, they can tell a story with;	Soundwalk with portable recorders	Steve + teacher	portable audio recorders, SD cards, cameras, sounding objects
			Musique Concrète Composition Group: recording sounding objects. Task for Musique Concrète group to watch out for sounds with musical value	Recording in classroom	Adam + Motje	
2:35	Room Change Soundscape Role Play Group: back to class room; Musique Concrète Talk Show group: go to hallway; both composition groups come back in IT room.					
2:35	35	Role play and Talkshow group know what to do	Working on tasks. They have the possibility to listen to more music at the listening station in the hallway or to research something on the help desk with the computer.	Both group have searched for their content and need to realise their task. As there are more in each group, they can decide if they want to have some experts, who are just researching and informing the others for realising the play. Group leaders are helping when they get stuck.	Gez, Steve	
2:35	20	Composition groups know how to use Audacity	Basic functions of audacity, how to open and save project, how to import a sound, how to create multiple tracks, one sound per track	Talk and demonstration. Students follow and do the same thing on their computer.	Motje, Adam	



			rule, how to edit (cut, copy, paste, re-arrange, delete), how to move a sound to another place, how to change volume, how to fade in and out, how to change panning. Basic effects (echo, change pitch, change tempo, change speed, reverse, wahwah, repeat)			
2:55	15	Composition groups have an idea and a structure for their pieces	Soundscape: writing a storyboard Musique concrète: Making list of sound they want to use	Individual work or group work (pairs). 3:10 go back to classroom		
SAFE PROJECTS ON COMPUTER AND USB STICKS. Name files: LGS_name						
All groups are meeting in the classroom for a quick feedback.						
3:10	5	Finishing off, we know how much time we need to plan for next week	Quick feedback about work in the groups	Just who wants to say something	Motje	



Lesson 4

Lesson plan for Wednesday, 24th March, 10

2:00 lesson start in recital room, quick hello (Motje)

2:05 groups go to work: composition groups to computer room, role play groups stay

Musique Concrète Composition Group:

2:05-2:15 Upload files (selected sounds from their recording) and explain basic functions of program again.

2:15-2:30 Listening, trying out, messing around

2:30-2:45 drawing final decisions and finishing piece off

Soundscape Composition Group:

2:05-2:15 before you switch on computers. Recap what you've done so far, reminding of task (ask them what they remember)

2:15-2:30 if necessary explain basic functions of program again, then working on piece

2:30-2:45 drawing final decisions and finishing piece off

2:45 meet back in recital room

2:50 performance 1

3:00 performance 2

3:10 feedback



Lesson 5

14:00 (2min)	Hello and explanation of lesson	Motje
14:02 (10min)	Recap of everything with question and answer	Motje
14:12 (10min)	Listening to student compositions	
14:22 (10 min)	Listening response	Motje
14:32 (15min)	Questionnaire	Motje
14:47 (15min)	Letter	Motje
15:02 (8min)	finish, thank you + Chocolate	Everyone

Samples of Original Data (Case Study 4)



EARS II – Workshop Questionnaire (CS04-05/05/10)

All data will be saved anonymously, but please give your name that I can compare your answers with other questionnaires from you. Thank you.

Name: _____

Age: _____ **male/female**

Ethnic origin:

Please tick the category that you feel best reflects your ethnic origin:

Asian

Indian Pakistani Bangladeshi Other Asian: _____

Black

Caribbean African Other Black: _____

Chinese

Chinese Other Chinese: _____

Mixed

White and Black Caribbean White and Black African
 White and Asian White and Chinese
 Other Mixed: _____

White

White British White Irish White Other: _____

Other ethnic Group

Other ethnic Group: _____

Ethnicity

Prefer not to say

Nationality: British

1. What is your favourite music?

rap, hip hop.

2. Do you play an instrument?

If yes, which and which grade do you currently have?

No

3. When you learn something about music, what interests you most?

(for example composers, different styles, different instruments or pieces)

backing

EARS II – Workshop
Motje Wolf, motje.wolf@email.dmu.ac.uk



4. How experienced are you in using a computer?

Please rate between 1-5.

(1 = I need more training, 5 = very good, able to use programming languages)

5

5. How often do you use the Internet per day?

- <1 hour
- 1-2 hours
- 2-3 hours
- 3-4 hours
- 4-5 hours
- >5 hours

6. Have you listened to electroacoustic music before?

NO

7. What do you think is electroacoustic music?

music which feels like and has modern backing
to it

Thank you very much!



EARS II – Workshop Questionnaire (CS04-05/05/10)

All data will be saved anonymously, but please give your name that I can compare your answers with other questionnaires from you. Thank you.

Name _____

Age: 13

~~male~~ female

Ethnic origin:

Please tick the category that you feel best reflects your ethnic origin:

Asian

Indian Pakistani Bangladeshi Other Asian: _____

Black

Caribbean African Other Black: _____

Chinese

Chinese Other Chinese: _____

Mixed

White and Black Caribbean White and Black African

White and Asian White and Chinese

Other Mixed: _____

White

White British White Irish White Other: _____

Other ethnic Group

Other ethnic Group: _____

Ethnicity

Prefer not to say

Nationality: British

1. What is your favourite music?

chart music

2. Do you play an instrument?

If yes, which and which grade do you currently have?

Piano, grade 1

3. When you learn something about music, what interests you most?

(for example composers, different styles, different instruments or pieces)

Different styles,

EARS II – Workshop
Motje Wolf, motje.wolf@email.dmu.ac.uk



4. How experienced are you in using a computer?

Please rate between 1-5.

(1 = I need more training, 5 = very good, able to use programming languages)

4

5. How often do you use the Internet per day?

- <1 hour
- 1-2 hours
- 2-3 hours
- 3-4 hours
- 4-5 hours
- >5 hours

6. Have you listened to electroacoustic music before?

No.

7. What do you think is electroacoustic music?

I don't know.

Thank you very much!



EARS II – Workshop Questionnaire 2 CS04-17/06/10

All data will be saved anonymously but please give your name that I can compare from you. Thank you.

Age: 13

male/female

Group. Please circle

1 Talkshow Musique concrète
3 composition Soundscape

2 composition Musique concrète
4 role play Soundscape

1.

a) What is your overall impression of the workshop?



b) What did you enjoy most of the last 5 weeks?

Recording the sounds.

c) Why?

It was interesting to see what sounds
everyday objects make.

2.

a) What should be different in the next workshop?

More time to compose the pieces

b) Why?

Once we had recorded the sounds good
there was little time to put together a good
composition with effects.

3. Since you've done the workshop: Do you think, you hear sounds in a different way?

For example, were you more aware of sounds in your environment? Or did you listen to music in another way?

If yes, why?

Yes, because I listen to my
rhythms and timbres
more now.



4. What is the difference between Soundscape and Musique concrète?

Musique concrète is where you listen to the sounds but try not to think of where they come from and more on the rhythm/timbre/duration etc.

5. How did you like working with the EARS II website?
Please circle.

- a) I could find information easily. 😊 ☹️ ☹️
- b) the texts on the website were understandable. 😊 ☹️ ☹️
- c) I enjoyed working with the website. ☹️ 😊 ☹️

If you've circled ☹️ somewhere, could you please write down what we could make better?

6. Can you remember...

... a composer:

... a piece:

... something that was new for you to learn and surprised you:

7. Would you like to listen to electroacoustic music (music with sounds) again?

😊 ☹️ ☹️

8. If there were a second workshop going into more detail, would you like to take part?

Yes, I would like to learn more

9. Anything else you would like to say?

Thank you very much!



EARS II – Workshop Questionnaire 2 CS04-17/06/10

All data will be saved *your name that I can compare*
your an Thank you.

Name:

Age: male female

Group. Please circle

- 1 Talkshow Musique concrète 2 composition Musique concrète
3 composition Soundscape 4 role play Soundscape

1.

a) What is your overall impression of the workshop?



b) What did you enjoy most of the last 5 weeks?

The very beginning.
Learning about what it is.

c) Why?

You're learning something new.

2.

a) What should be different in the next workshop?

Try and show everyone's recorded sounds.

b) Why?

So we can compare our own work to others.

3. Since you've done the workshop: Do you think, you hear sounds in a different way?

For example, were you more aware of sounds in your environment? Or did you listen to music in another way?

If yes, why?

Yes, because now when I hear real world sounds, I won't just ignore, ~~that~~ I will know that it's music.



4. What is the difference between Soundscape and Musique concrète?

Soundscape is when you tell a story ~~about~~ using real world sounds. Musique concrète is just real world sounds.

5. How did you like working with the EARS II website?

Please circle.

- a) I could find information easily. 😊 ☹️ 😊 ☹️
- b) the texts on the website were understandable. 😊 ☹️ ☹️ ☹️
- c) I enjoyed working with the website. ☹️ ☹️ ☹️ ☹️

If you've circled ☹️ somewhere, could you please write down what we could make better?

6. Can you remember...

... a composer:

no

... a piece:

no

... something that was new for you to learn and surprised you:

no.

7. Would you like to listen to electroacoustic music (music with sounds) again?

😊 ☹️ ☹️ ☹️

8. If there were a second workshop going into more detail, would you like to take part?

Yes.

9. Anything else you would like to say?

No.

Thank you very much!



Please write a letter to your friend or mum and dad or brother/sister. Tell them that you have been to a workshop about music with sounds. Explain to them what this music is.

Dear... Mum

We recorded real world sounds and then edited them into music concrete. Which is just real world sound put together. We listened to some soundscape music. Which is real world sounds also put together.

But this time, it is made into a story. When we recorded sounds, we walked, talked, used instruments, paper + other equipment.



Please write a letter to your friend or mum and dad or brother/sister. Tell them that you have been to a workshop about music with sounds. Explain to them what this music is.

Dear... John,

At school, we did an electro-acoustic music course at school and I know you would be interested in it. It is music made without guitars or pianos or words, but with real world sounds like birds or somebody playing ping-pong.

There is another type of music which is generated by computers but the sounds are difficult to describe.

Composers gather their real-world sounds by going on sound walks and recording what they heard then editing it on the computers they have. I think you should research it, John. It sounds like your kind of thing.

From _____

CS04-17/06/10





- The train
- A car through water?
- Sort of humming and tinkering.
- loud bangs.
- gong
- sounds magical.
- baby talking
- a bus or train?
- a horn on a car?
- goes quiet
- a bit like fairytale music.
- humming.
- birds.
- Seaside, waves, shore.
- a hoover or tractor
- something opening. That tinkering again
- a ringing (smooth) noise.



N:

Cash machine
Train
Cars
Gong
Tube
Singing
Car Crash?
Sandpaper rubbed together.
Breathing
Little children
Ocean.
Train tracks.
Elevator.
Music
Doors creaking
Car Horn
Wind
Bells
Rain dropping on concrete.
Fishing Rod.
Whale-blow horn.
Foot steps.
Crashing sounds.
Thunder-storm/lightning.

Church Bells.