Unit 58: Sound in Interactive Media

Unit code: Y/502/5778

QCF Level 3: BTEC National

Credit value: 10

Guided learning hours: 60

Aim and purpose

The aim of this unit is to help learners develop skills in planning and creating digital sound for interactive media products using digital sound editing software. Learners will develop an understanding of the use of sound in interactive media products. They will design and produce original sounds for an interactive media product and integrate these sounds into the product.

Unit introduction

As the interactive media industry develops and expands, the demand for individuals with both the creativity and technological skills to realise effective sound products is increasing. The very nature of most interactive media, such as web content, mobile telephone technologies and computer games, requires that audio content is both appropriate and effective in communicating messages, narratives, mood and tone.

Increasingly within the interactive media industry, individuals are required to be multi-skilled in their approach to work. A good understanding of the impact of sound, as well as an ability to incorporate and implement sound production technologies, is often a prized capability.

Through following this unit learners will develop skills in planning and creating sound for interactive media products. They will also develop their knowledge of digital sound editing software along with an understanding of the concepts, language and terminology associated with this area.

Learning outcomes

On completion of this unit a learner should:

1   Understand the use of sound in interactive media products

2   Be able to devise sound assets for an interactive media product

3   Be able to create sound assets for an interactive media product following industry practice

4   Be able to apply sound assets to an interactive media product following industry practice.

Unit content

1 Understand the use of sound in interactive media products

Theory of sound: waveform (wavelength, amplitude, frequency); pitch; Hertz (Hz); decibel level (dB); sound generator (loudspeaker)

Basics of sound recording: signals; signal to noise ratio; analogue distortion; digital distortion; mono, stereo, multichannel; sound recording media; digital audio file formats eg .mp3, .wav, .mid, .ogg, .wma, .aif

Analogue versus digital: comparison of analogue and digital sound; advantages and disadvantages of production techniques; issues with digitisation of analogue material; quality issues

Applications: interactive media products eg websites, DVD interfaces, interactive presentations, computer games, mobile phone content

Use of sound: carrying dialogue; enhancing mood or tone; indicators eg danger, impending action, emotion; guiding users; alerts; entertainment, eg streaming music

2 Be able to devise sound assets for an interactive media product

Stimulus: eg client brief, own brief, from market research

Ideas: brainstorming; audio storyboard eg soundscape; identify source eg own recorded material, fieldwork, studio, pre-recorded material, sound libraries

Legal and ethical considerations: legal eg copyright; ethical eg confidentiality, decency; representation eg race, gender, religion, sexuality

Asset specification: target audience; considerations eg purpose, genre, sample rate, resolution, mono, stereo or multichannel, ambient sound, voiceover, required file naming conventions; sound list

3 Be able to create sound assets for an interactive media product following industry practice

Plan: asset management (file storage and retrieval, naming conventions); workflow (scheduling, efficient time management); deadlines (production milestones, deliverables, quality assurance)

Recording sound: recording log; recording (fieldwork, studio); audio sampling (file size constraints, sample rate, mono, stereo, multichannel)

Audio levels and metering: meters eg VU meter, peak program meter; standard operating level

Sound manipulation: importing; editing eg cut, copy, paste, trim, channel mixer, cue points, markers; effects eg amplify, chorus, cross fade, delay, echo, fade in/out, invert, envelope, normalise, pan, reverb, reverse, re-sample, silence; time and pitch eg Doppler, stretch; filters eg pass (band, high, low), notch, noise reduction, pop/click, equalisation; loops; cue list; playlist; mix down

Industry practice: reflect on finished product (compared with original intentions, fitness for purpose, technical qualities); production skills (ideas generation, workflow and time management, technical competence, teamwork)

4 Be able to apply sound assets to an interactive media product following industry practice

Asset management: importing; organising (file storage and retrieval, naming conventions)

Edit audio: audio library material eg sound libraries, stock music assets; studio produced audio eg voiceovers

Apply: synchronising sounds eg actions, onscreen movement, scenes, lip-synching; dub; embed; link to sound file

Industry practice: reflect on finished product (compared with original intentions, fitness for purpose, technical qualities); production skills (ideas generation, workflow and time management, technical competence, teamwork)

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	**To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:**	**To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:**
P1 describe the use of sound in interactive media using some subject terminology appropriately	**M1** explain the use of sound in interactive media with reference to detailed illustrative examples and with generally correct use of subject terminology	**D1** critically evaluate the use of sound in interactive media with supporting arguments and elucidated examples, consistently using subject terminology correctly
P2 generate outline ideas for sound assets for an interactive media product working within appropriate conventions and with some assistance [CT]	**M2** generate detailed ideas for sound assets for an interactive media product showing some imagination and with only occasional assistance	**D2** generate thoroughly thought-through ideas for sound assets for an interactive media product, showing creativity and flair and working independently to professional expectations
P3 create sound assets for an interactive media product following industry practice, working within appropriate conventions and with some assistance [CT; SM]	**M3** create sound assets for an interactive media product working to a good technical standard following industry practice, showing some imagination and with only occasional assistance	**D3** create sound assets for an interactive media product working to near-professional standards following industry practice, showing creativity and flair and working independently to professional expectations
P4 apply sound assets to an interactive media product following industry practice, with some assistance. [SM; RL]	**M4** apply sound assets to an interactive media product working to a good technical standard following industry practice, and with only occasional assistance.	**D4** apply sound assets to an interactive media product working to near-professional standards, following industry practice and working independently to professional expectations.

PLTS: This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills applicable in the pass criteria. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

This unit is intended to develop an understanding of the range of practical applications in digital audio production, the uses for such products and the importance of sound in interactive media. Learners must develop an awareness of the power of digital audio editing and its uses in interactive media applications. They should also investigate how and why sound is used in a range of interactive media applications.

The unit could be taught with a variety of activities and short practical exercises preceded by investigations and research into the way sound can be used in interactive media applications. This could take the form of group discussions, individual investigations such as case studies, or practical research. Work on learning outcome 1 might begin with whole-group activities such as the analysis of sound within a certain product. A tutor-led walk-through of a sound-rich interactive environment (such as within a first-person shooter video game or flash-heavy website) with learners identifying the sound within the product would be a good starting point. This could lead on to activities separating the sound from the other elements of a product. It might be interesting at this point for learners to consider how sound can be *mis*used – for example, the way in which keypad tones on mobile phones can be annoying to other people. They could be asked to consider whether the handset manufacturers should disable the sounds by default and allow the user to switch them on if required, rather than the other way around, given that a lot of people do not know how to disable them.

The playback of sound elements without other content for analysis of mood or tone may be of assistance, as may the viewing of visual and interactive elements without sound. Group members could benefit from making suggestions as to the purpose of sound within a product looking at narrative support, tone creation and selection confirmation (in DVD menus or websites, for example). Considerations of haptic involvement with many interactive products, and the vital link between this and sound content, would be of great value. Learners exploring the dynamic link between touch and sound activation (key presses on mobile phones, action sound effects on computer games) would gain a good understanding of the key role it plays in many interactive products. Drawing a sound map may also be of use: annotating the visual elements of a screen on a printout of a screen-grab, highlighting where interactive sound elements are activated, and defining how and why these are used, would be an ideal way of beginning the documentation process of this element of the unit.

Learning outcome 2 focuses on the generation of ideas and outline planning to assist in the creation of sound assets. Learners will benefit from careful guidance on both the value of such a process and the requirements of professional practice. Looking at exemplar documents such as project proposals and resource-planning sheets would be of great use. Due to the evolving nature of this area, many individuals and companies implement their own planning material and processes. It might, therefore, be advisable to implement a 'house-style' for such procedures and encourage learners to follow this pattern, perhaps through the formulation of in-house documentation. In order to ensure that learners are given the opportunity to reach the higher grades, however, tutors should ensure that all elements of preparation are considered carefully and documented efficiently.

Given the requirements to incorporate sound into an actual interactive media product, it is vital that learners have a clear idea about the nature of the product they are developing sound for. The planning documentation should not require a great deal of planning surrounding the product as a whole, but should focus closely on the audio content within it. It might, therefore, be beneficial to teach this unit alongside other units that are focused on developing different elements of an interactive media product. This would allow learners to develop a grasp of a product as a whole, drawing out the audio work completed for this unit.

Alternatively, tutors could present learners with a silent interactive media product and set them the brief of implementing the audio elements for it. This would allow tutors to provide a 'client' relationship with learners and a specific focus on the audio work rather than concern over the product as a whole.

In preparation for the practical production of sound elements, learners should be introduced to the practices and concepts at the heart of current digital audio editing. A tutor-led session followed by a workshop-based approach might be appropriate for this, allowing learners to develop basic skills and techniques and then experiment and work with them. Learners should document their progress through this stage of their work in an appropriate manner (perhaps a video, audio, or photographic diary, or a blog). The results of their experimentation should be stored carefully in a digital format, both for the learner's own reference and to aid evidencing of achievement. Often, the use of software is best taught in short sessions with new techniques being reinforced with small practical projects. Lectures and discussions, and possibly speakers from within the industry, could be incorporated into the teaching programme along with visits to interactive media producers.

For the practical production of sound products leading towards learning outcome 3, learners should be advised to complete all planning material before they start. A clear plan of what they intend to produce, and a bank of the resources they need, should, as far as possible, be in place before production begins. This not only mirrors industry practice but will also give learners a defined path of progression and make the documentation of progress an easier task.

As previously highlighted, learning outcome 4 requires that learners demonstrate an ability to apply the audio products they have produced to an interactive media product. Learners could be carefully guided through the requirements of such a task and allowed the opportunity to practise the skills of file conversion, basic scripting and uploading before applying them to their own products.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan demonstrates one way of planning the teaching and assessment of this unit.

Topics and suggested assignments and activities
Introduction to unit and unit assessment.
Introduction to use of sound in interactive media products.   Learners: • receive lectures on concepts of sound and sound recording   • receive lectures and take part in discussions and demonstrations to examine how sound is used in an interactive media product   • receive lectures and take part in discussions to explain how sound is used to create mood and tone in an interactive media product   • analyse the use and misuse of sound in interactive media products, make notes and discuss observations.

Topics and suggested assignments and activities
Assignment 1: Use of Sound in Interactive Media: What You Need to Know Learners have been asked to contribute an article to an online media ezine on the use of sound in interactive media, focusing on how designers use sound to enhance a user's interactive experience. The article must cover: • applications • use of sound in those applications • theory of sound • sound recording • advantages and disadvantages of analogue and digital technologies for sound.
Introduction to and review of ideas generation and recording.
Assignment 2: Sound for College Promotional Interactive CD Part 1 Working individually to a brief from the college management, learners will generate ideas for the sound element of a college promotional interactive CD. Learners will: • consider and interpret a creative brief • generate and record ideas • find suitable source sounds and document their locations • carry out pre-production planning • consider and document the legal and ethical implications of their proposed work • compile a comprehensive development log evidencing their creative work.
Development of practical skills needed to create sound assets, with brief introductory lectures at commencement of sessions, and covering: • audio recording software tools and equipment • audio editing software tools.
Assignment 2: Part 2 Learners will undertake production sessions to create sound assets as planned in Part 1 of this assignment.
Workshop sessions on integrating audio for an interactive media product, with brief introductory lectures at commencement of sessions, and covering: • editing, integrating, dubbing and synchronising sounds • reflective practice.
Assignment 2: Part 3 Learners will complete post-production work as planned in Part 1 of this assignment: • edit, integrate, dub and synchronise sounds • review interactive sound production work.
Unit learning and assessment review.

Assessment

Evidence for assessment

Evidence for achievement of learning outcome 1 could be in the form of a presentation recorded on video or through a tutor observation report. It could also take the form of a portfolio of annotated research and activities, a written report or an interactive presentation. The investigations should cover both technology issues and usage. Notes from lectures, research from the internet, books and periodicals with the learner's own annotations and comments can all contribute to the evidence.

Presentations must be recorded for the purposes of internal and external verification.

Achievement of learning outcome 2 will be evidenced by records of the learner's planning for their sound production work. This could be shown through such means as notes on the creative process, incorporation of sound in storyboards, response to producer demands, production scheduling, minutes of meetings, and proposals outlining the intended purpose of the work. Work may reference existing products in terms of similarity or difference.

Evidence for achievement of learning outcome 3 will be a finished audio product, stored separately to the integrated piece, and any associated post-production documentation. This could be supplemented through individual notes and observation of software use. Documentation such as screenshots of software use and stored versions of work in progress will help to provide evidence for achievement of this learning outcome.

Evidence for achievement of learning outcome 4 will consist of a whole or part of an interactive media product with the piece produced by the learner integrated within it. The sound should be fully applied to the product which should be able to run in a consumer environment such as a browser or DVD interface.

For some elements of this unit, and for some learners, a formal viva voce assessment might be appropriate. When more than one learner in a cohort is assessed in this way, care must be taken to ensure that all learners are asked equivalent questions, and that all are given equal opportunities to expand or clarify their answers. Interviewers must also ensure that questions are not phrased in such a way as to provide or suggest an answer. Formal vivas should be recorded for the purposes of internal and external verification and at least 50 per cent of such assessments must be internally verified.

Application of grading criteria

When applying the grading criteria, tutors should follow the advice given below. Please note that any examples of evidence given here are indicative only. This advice is not exhaustive and the examples need not specifically be included in a learner's work in order for that learner to achieve the exemplified grade.

For each of the criteria learners must present evidence that addresses each italicised sub-heading of the content for the learning outcome.

P1: learners will provide a description in which all aspects of the description are accurate and relevant. The uses of sound in interactive media will be covered substantially, though not necessarily completely. Learners might make statements such as, 'Sound is important in interactive products such as websites as it helps direct a site visitor to different features.' Evidence will show a basic understanding of technical terminology but learners will generally be unsure about this vocabulary and will make fairly frequent mistakes when they do use it.

P2: ideas will be sketched out roughly and without much detail. Learners will not justify their choice of final ideas for implementation. However, they will present some verbal or visual record of their ideas and will give some indication of where the ideas came from or how they were arrived at. Documentation will be basic but sufficient to indicate intentions. In terms of the aesthetic or imaginative qualities of their work, pass grade learners will not move beyond the conventional, but the conventions applied will be appropriate to the form or genre within which they are working.

P3: 'create' means that learners act positively, with more deliberation or intention than just 'doing' something. Learners will have achieved something which will not fully realise what was intended, but the activity that led to it will have been purposeful and the outcome will have some shape, some sense of design, or the deliberate application of some technique behind it. Learners might have produced an audio piece which, whilst fulfilling the aims identified in their planning, is derivative or formulaic and perhaps not highly adept in its use of technology. It should, however, apply appropriate conventions and be produced to a level at which it can be played both separately and within an interactive media product.

P4: the term 'apply' means that learners integrate the sound assets within an interactive media product which either they have created in another unit or which has been provided by the tutor. The sound assets applied to the interactive media product must have a clear and deliberate purpose. Learners will have achieved something which will not fully realise what was intended, but the activity that led to it will have had some sense of design, or the deliberate application of some technique behind it.

P2, P3 and P4: when engaged in practical activities, learners will need frequent assistance and support, though they will take note of and make use of this help when it is given. If they are in frequent need of such help but fail to make positive use of it, they should not be considered for a pass grade for this unit.

M1: learners will talk about the way sound is used in interactive media products in such a way as to show how it is used and why it is used the way it is. There will be relevant examples given to support what is said, but the learner will not elucidate these examples to show how they illustrate the point they support. A learner might, for example, note, 'On DVD menus it is often useful for a sound to play to let the user know that they have moved the cursor. The DVD of the sitcom we looked at didn't have this.' Whilst the learner has identified an example of a product that relates to the point they have made they have not gone on to explain further how this demonstrates their point. Learners will use technical vocabulary for the most part correctly, but may make mistakes or be unsure about usage at times.

M2: ideas will be presented in some detail with consideration being given to such matters as the target audience, purpose, and legal and ethical constraints. They will be presented carefully through, for example, written notes or competently produced audio storyboards. Work will be approached carefully and with adequate preparation, ideas development will be documented well and presented neatly. In the planning of their work, merit grade learners will still be working within recognisable generic conventions, but there will be some imaginative thought behind the work so that codes and conventions will be employed with some inventiveness.

M3: learners will show facility and some confidence in the creation of sound material and in relation to skills and the handling of equipment. Processes will be undertaken with care and, generally speaking, thought will be put into the work. Learners will have produced audio assets which fulfil the aims identified in their planning and show some confidence in the use of the technologies involved. They will not be highly original, but should evidence some imagination in their creation and utilise the equipment well. They should also be appropriate and produced to a level at which they can be played both separately and within an interactive media product.

M4: in the application of their audio work to an interactive media product learners will show facility and some confidence in relation to skills and the handling of equipment. There may be some technical shortcomings (in, for example, maintaining consistent sound levels) but such flaws will not be serious. Work will be approached methodically and with adequate preparation. Processes will be undertaken with care.

M2, M3 and M4: when engaged in practical activities, learners will need occasional support, particularly when dealing with more complex technology or trying to apply more sophisticated techniques. Like the pass grade learner, they will benefit from such support.

D1: learners will justify points made using supporting arguments or evidence, develop ideas critically (ie compare, assess and discriminate) and draw out of an example precisely what it is about it that exemplifies the point it illustrates. A distinction grade learner will make comments such as, 'The sound designers for this chose to use lute music at this point in the game as it evokes the time period within which this level is set. Lute music is used as a code for medieval times in other media products too and a player would recognise this.' Technical vocabulary will be secure and used correctly and confidently at all times.

D2: work will be approached methodically and systematically at all points. Relevant procedures will be followed and documentation will be thorough. Codes and conventions will be applied with ingenuity and even elegance, and perhaps occasionally with surprising results.

D3: learners will produce audio assets which fulfil the aims identified in their planning, are original and creative in nature and demonstrate an adept use of technology. The assets should be appropriate to purpose and produced to a level at which they can be played both separately and within an interactive media product.

D4: learners will demonstrate an ability to implement the sound assets of their chosen interactive media product in an intelligent and highly appropriate way. Here, and in relation to D3, the term 'near-professional standards' does not mean the learner has to achieve actual professional standards. 'Near' means that technical and production skills are beginning to approach the professional standard – they bear comparison with it.

D2, D3 and D4: in all practical activity distinction grade learners will be capable of working autonomously and effectively. The term 'working independently' means that they are able to work on their own initiative, do not need constant support or supervision, give the work their full commitment, work positively and cooperatively with others, and meet deadlines. In other words, they have the kind of self-management skills that would be expected of them in a professional context.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, M1, D1	**Assignment 1**: Use of Sound in Interactive Media: What You Need to Know	Contribution to online media ezine – article on use of sound in interactive media.	• All preparatory notes. • Report document as word-processed or electronic presentation.
P2, M2, D2	**Assignment 2**: Sound Assets for College Promotional Interactive CD, part 1	Brief from college management to create sound assets for an interactive CD to promote the college.	Development log containing: • all ideas notes, audio storyboard, scripts • sound asset specifications • proposal outline • planning notes.
P3, M3, D3	**Assignment 2**, part 2	As above.	Project portfolio containing: • unedited sounds • existing library sounds • recording log • all production documentation.
P4, M4, D4	**Assignment 2**, part 3	As above.	Project portfolio containing: • edited sounds integrated into interactive CD • development log • personal reflective comment.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Art and Design suite. This unit has particular links with the following units in the BTEC Art and Design suite:

Level 2	Level 3
Working with Interactive Media Briefs	Audio Production Processes and Techniques
	Sound for Computer Games
	Soundtrack Production for the Moving Image

There are opportunities to relate the work done for this unit to Skillset National Occupational Standards in Interactive Media and Computer Games as follows:

- IM1   Work effectively in interactive media
- IM2   Obtain assets for use in interactive media products
- IM3   Prepare assets for use in interactive media product
- IM9   Provide creative and strategic direction for interactive media projects
- IM16   Plan content for web and multimedia products
- IM27   Create sound effects for interactive media products
- IM28   Create music for interactive media products.

Essential resources

Centres will need appropriate hardware and software of industrial standard. Learners should also have access to relevant software manufacturers' manuals, textbooks, the internet, and a range of examples which illustrate the use of sound in interactive media products.

Employer engagement and vocational contexts

Centres should develop links with local interactive media production studios which could be approached to provide visiting speakers, study visits or samples of typical products.

Skillset, the Sector Skills Council for the creative media sector, has a substantial section of its website dedicated to careers, including job descriptions – www.skillset.org/careers.

Further general information on work-related learning can be found at the following websites:

- www.aimhighersw.ac.uk/wbl.htm – work-based learning guidance
- www.businesslink.gov.uk – local, regional business links
- www.nebpn.org – National Education and Business Partnership Network
- www.vocationallearning.org.uk – Learning and Skills Network
- www.warwick.ac.uk/wie/cei – Centre for Education and Industry, University of Warwick – work experience and workplace learning frameworks.

Indicative reading for learners

Textbooks

Baylis P, Freedman A, Procter N et al – *BTEC Level 3 National Creative Media Production, Student Book* (Pearson, 2010) ISBN 978-1846906725

Baylis P, Freedman A, Procter N et al – *BTEC Level 3 National Creative Media Production, Teaching Resource Pack* (Pearson, 2010) ISBN 978-1846907371

Cancellaro J – *Exploring Sound Design for Interactive Media* (Delmar, 2005) ISBN 978-1401881023

Case A – *Sound FX: Unlocking the Creative Potential of Recording Studio Effects* (Focal Press, 2007) ISBN 978-0240520322

Dolby T – *Thomas Dolby's Guide to Website Sound Design* (Davis, 1997) ISBN 978-1562765477

Follansbee J – *Hands-On Guide to Streaming Media: an Introduction to Delivering On-Demand Media* (Focal Press, 2006) ISBN 978-0240808635

Huber D M – *Modern Recording Techniques* (Focal Press, 2005) ISBN 978-0240806259

Mack S – *The Streaming Media Bible* (John Wiley & Sons, 2002) ISBN 978-0764536502

Miller M – *Complete Idiot's Guide to Recording with Cubase* (Alpha Books, 2007) ISBN 978-1592574995

Millward S – *Fast Guide to Cubase SX* (PC Publishing, 2005) ISBN 978-1870775984

Riley R – *Audio Editing with Adobe Audition* (PC Publishing, 2008) ISBN 978-1906005030

Journal

Future Music

Websites

www.computermusic.co.uk – the sister site to the Future Publishing magazine title of the same name, this regularly updated site focuses on the creative and technological processes behind digital music production

www.findsounds.com – a site that links to many sound effect archives with short clips; although not a very comprehensive source of sounds, this may be useful in both researching and collating resources Delivery of personal, learning and thinking skills

Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are …
Creative thinkers	generating ideas for sound assets to be used in an interactive context
	trying out different ways of creating their sound asset production, following ideas through to produce an asset library for an interactive product
	adapting their ideas as circumstances change
Reflective learners	reviewing and reflecting on their sound asset production and application, and acting on the outcomes to modify and improve their work
	setting goals with success criteria for their production work
	inviting feedback on their own work and dealing positively with praise, setbacks and criticism
	evaluating their learning and experience to inform future progress
Self-managers	producing sound assets to be used in an interactive context
	seeking out challenges or new responsibilities and showing flexibility when circumstances change
	dealing with competing pressures, including personal and work-related demands
	responding positively to change, seeking advice and support when needed.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are …
Independent enquirers	carrying out research into the use of sound in an interactive context
	carrying out research to develop ideas for their own sound asset production
Team workers	if working in a group to produce sound assets, taking responsibility for their own role
	managing their personal contribution to discussions to reach agreements and achieve results.

Functional Skills – Level 2

Skill	When learners are …
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	handling sound recording and editing systems to create their audio assets
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	planning for the creation of their audio assets
Manage information storage to enable efficient retrieval	managing assets sourced and created for their audio assets
Follow and understand the need for safety and security practices	handling sound recording and editing systems to create their audio assets
Troubleshoot	handling sound recording and editing systems to create their audio assets
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	sourcing sound assets for their interactive media production
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	researching asset types and their limitations for use with their audio production
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: • text and tables • images • numbers • records	building and presenting their project portfolio showing their interpretation of their brief and generation of ideas, documenting the management of their chosen assets, considering legal implications and reviewing their own work
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	
Evaluate the selection and use of ICT tools and facilities used to present information	preparing a report on audio production tools
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	gathering feedback on their audio work as part of their self-reflective practice

Skill	When learners are ...
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	taking part in brainstorming sessions to generate ideas as a response to a creative brief
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	studying manufacturers' manuals to research audio production software tools
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	creating their project portfolio incorporating ideas, notes, production documentation and reflective comment.