

Creation of Media-Based Learning Material for Audio and Music Technology



Abstract

Audio and Music Technology courses have become well subscribed in UK Higher Education, but, being a rather modern academic field, these courses have not benefited from substantial research, analysis and development of learning and teaching strategies. This article discusses developed interactive methods for assisting teaching in Audio and Music Technology and discusses their merits for enhancing the student learning experience.

Keywords

music, experience, entrepreneurial

Introduction

The degree subject of Audio and Music Technology is a broad multidisciplinary field encompassing aspects of electronics, mathematics, computing, acoustics, music and psychology. This brings a considerable challenge for delivery of deep and effective course content and engagement with all students. Furthermore, the professional fields of music technology and music production are dominated by a need for experience above raw academic ability, so novel and diverse teaching and learning strategies are required.

In particular, professional level case study material is required to cover practical areas of the field that are challenging to teach within a classroom environment. For example, the practice of recording a 70-piece classical orchestra cannot easily be taught in classroom alone. Practical skills of project management, pre-production, project budgeting, engineering techniques and post production all need transferring to the student, which is a considerable challenge in a purely academic environment and with large class sizes. Furthermore, there is a need for experience to be gained in a professional and industrial manner similar to that in which the music and recording industry operates. The author has developed professional level case study material to aid learning in this challenging field. The case study material, in the form of an interactive DVD with multiple film and audio options, allows students to effectively be at the recording session, in the meeting, making the decisions.

The particular case of Audio and Music Technology shares common challenges for teaching and learning with other new media fields, for example, video production and digital media production. The examples and outcomes of this research will therefore also benefit educators from wider fields in their approach to delivering diverse, deep and effective course content.

Simple Teaching Methods

A number of music recording and production skills can be taught as individual knowledge areas that make up the skills necessary for managing a larger project. For example, if it is desired to teach students how to record a multitrack studio project, then this can be done by discussing aspects of music production as discrete skill sets. In this case it is possible to discuss industry recognised (and referenced) techniques for recording, for example, a popular drum kit, and perform a simple practical exercise to implement these skills. Similar skills and knowledge can be transferred to the student for all instruments which may be recorded.

In popular music production, it is indeed possible to record each instrument individually and layer the audio to create an illusion of a unified performance. Here, producers may only need to work with one musician at a time, and in a relatively small (and inexpensive) space. Furthermore, the skills of mixing recorded audio into a finished artefact can be taught by example, with respect to published cases and by reflective review with the student.

These types of 'discrete' music recording projects allow a number of simple knowledge areas and skills to be transferred to the student, who can then develop and critique their own ideas and preferences through reflective practice. However, these types of projects do not expose the student to the wider aspects and skills of music production, which are essential for building a successful career in the field.

Challenges with Live Recording and Education

Live recording projects bring a unique set of challenges which allow students to experience relevant industry demands. Here, the specific challenges revolve around teamwork, project planning and dealing with unpredictable events. In many cases of music technology education, the opportunities to experience live recording projects are limited because they are reliant on events being accessible to students, in which students can become involved. At Anglia Ruskin University a number of opportunities do exist, given the diverse nature of local musicianship and, in particular, the excellent Lunchtime Concerts series organised by the Music Department.

During this research and wherever possible, students have been encouraged to participate in live recording events. In all cases, students are observed to develop enhanced skills, which have in turn improved their studio recording skills. Furthermore, the opportunity has been taken to 'teach by example', where the author sets coursework for students to record a live event and then in the first week of teaching performs the coursework assignment himself, to engage with students at an early stage of the module.

This method of teaching by example reduces the fear-factor involved in such exercises, as students have observed first-hand the assignment in action before having to take responsibility for their own assignment.

As discussed, larger-scale projects rely heavily on skills which are both subject-specific and personal skills. A good example here is an assignment to record a 70-piece concert orchestra on location and within an allocated time constraint. Students therefore need to understand the technical aspects of the project, but they also need to be able to practically deliver the project. The key skills required can be broken down into technical, project management and personal (communication) skills as follows:

Technical skills:

- Recording skills
- Mixing skills
- Technical knowledge

Project management skills

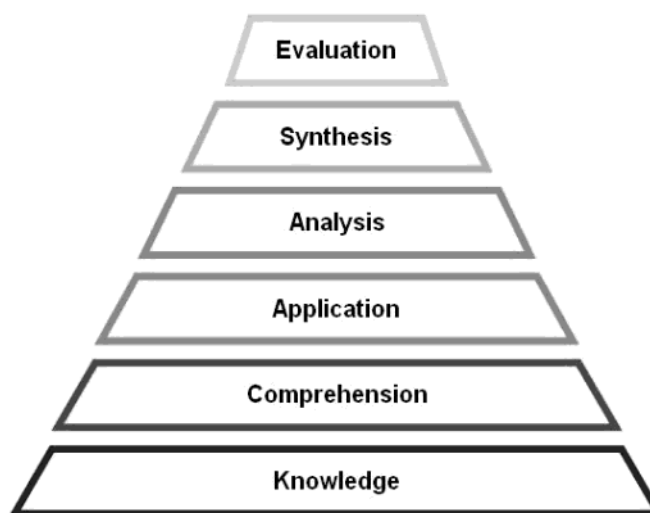
- Planning
- Financial management
- Time management
- Resource management

Communication skills

- Team working

Artist management

- Studio and venue contacts
- Record label contacts
- Entrepreneurialism



Bloom's Cognitive domain (Bloom, 1956).

Figure 1. Bloom's Cognitive Domain

It can be seen, as discussed above, that the technical skills can be taught and developed through standard classroom and practical session learning. However, the project management and communication skills cannot be so easily taught, as these must be developed through exposure and experience and enhanced through continuous reflective practice. It is therefore no surprise that practitioners in the music industry regularly report 'it's not what you know, it's who you know' and that 'experience is more important than knowledge'.

Bloom's Cognitive Domain

It is apparent that the quest to develop experience and skills above raw knowledge in the field of Audio and Music Technology aligns with Bloom's cognitive domain for learning (Bloom et al., 1956). See Figure 1 (above right).

Bloom et al. describe that knowledge transfer alone only leads to shallow learning, and that deep learning is only developed by moving up through the cognitive domain. As discussed, it is indeed possible for a number of students to acquire knowledge and comprehension in the field of Audio and Music Technology. However, effective application of this knowledge is essential for ensuring a successful career. Furthermore, reflective analysis is essential for practitioners to learn from their mistakes and handling unpredictable issues.

The key to deep understanding and high level practice, however, is in the innovation (synthesis) and evaluation of new and bespoke techniques. Here, practitioners can develop their own ideas, put them into practice and evaluate and evolve to perfection.

Cases Studies to Assist Learning

The use of case studies can assist the path of a student up through the levels of Bloom's cognitive domain. As mentioned above, seeing a practitioner work first hand at the desired level can inspire and engage students to achieve similarly. Unfortunately, many projects in the recording industry are regarded

as too important or critical to allow external observers, so students may have limited opportunity to observe. A valuable case study in a large scale music production project is that of Elbow's performance with the BBC Classical Orchestra, recorded at Abbey Road. This performance brought together a rock band with a classical orchestra and choir, requiring in excess of 100 microphones in all. The performance was broadcast live on BBC radio, filmed for BBC TV and released as a commercial music CD. The production methods are documented by Inglis (2009), which give valuable insight into the techniques used and issues encountered and resolved.

The author has similarly developed case study material to document both the technical aspects and project management of large scale recording projects. First is a samba band recording project (Toulson, 2010a), which describes the technical aspects of recording an 11-piece samba band under live conditions. This production served as a pilot study for the later orchestra recording project (Toulson, 2010b). See Figure 2.

Here, aspects of project management, entrepreneurialism and technical details are discussed and evaluated. The orchestra recording session is used as a case study to encourage interactive reflective practice by allowing the listener to evaluate three different audio recordings, each conducted using a different stereo recording technique. The developed case studies therefore allow students to identify the importance of climbing the levels of Bloom's cognitive domain and allow firsthand accounts of such projects. The student is therefore able to learn, somewhat, from other peoples' experiences and mistakes and thus climb Bloom's cognitive domain quicker. This is not to take away the importance of students engaging with the practical aspects and skills discussed, moreover, to bring visualisation to the anticipated experiences and to reduce the 'fear-factor' for students engaging in advanced and large scale projects.

The results of this research and case study development have already encouraged students to engage in more challenging and valuable music production projects, which shows that the route to deep autonomous learning can be accelerated. These results will be evaluated continuously through feedback sessions with current and future students so that teaching and learning methods can be evolved further and subsequently continue to enhance the student learning experience.

Recording an Orchestra

presented by Dr. Rob Toulson



Figure 2. Recording an Orchestra

References

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