

Media Methods for Music Technology Education

Dr Rob Toulson

rob.toulson@anglia.ac.uk

Anglia Ruskin University, Cambridge



Abstract

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 students of varying backgrounds. 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. 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 to date from substantial research, analysis and development of learning and teaching strategies.

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 interactive DVD with multiple film and audio options, allows students to effectively be at the recording session, in the meeting, making the decisions and evaluating the results.

Evaluation of the effectiveness of this case study material in enhancing the student learning experience is conducted by discussion between the project team (the music producer, film director and the artist) as well as within a local departmental teaching group, by direct feedback from taught students, and through conference presentation and dissemination. The presented session will showcase the newly developed interactive teaching material and discuss the gathered feedback. Audience evaluation of the presented material will furthermore be used in the continuation of this study in order to further develop and enhance the learning and teaching strategies discussed.

Summary

- Simple teaching methods for music production education
- Challenges with live performance recording and education
- Effective teaching and learning strategies
- Learning by documented interactive case studies
- Conclusions and further work
- References
- Questions

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.
 - Multitrack studio projects
 - Music production as discrete skill sets
 - Recording techniques for all instruments
- Here producers may only need to work with one musician at a time, and in a relatively small space, which makes teaching and learning simple and inexpensive.
- 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.

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 in education

- Live recording projects bring a unique set of challenges which allow students to experience relevant industry demands.
 - Teamwork
 - Project planning
 - 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
- 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.

Challenges with live recording education

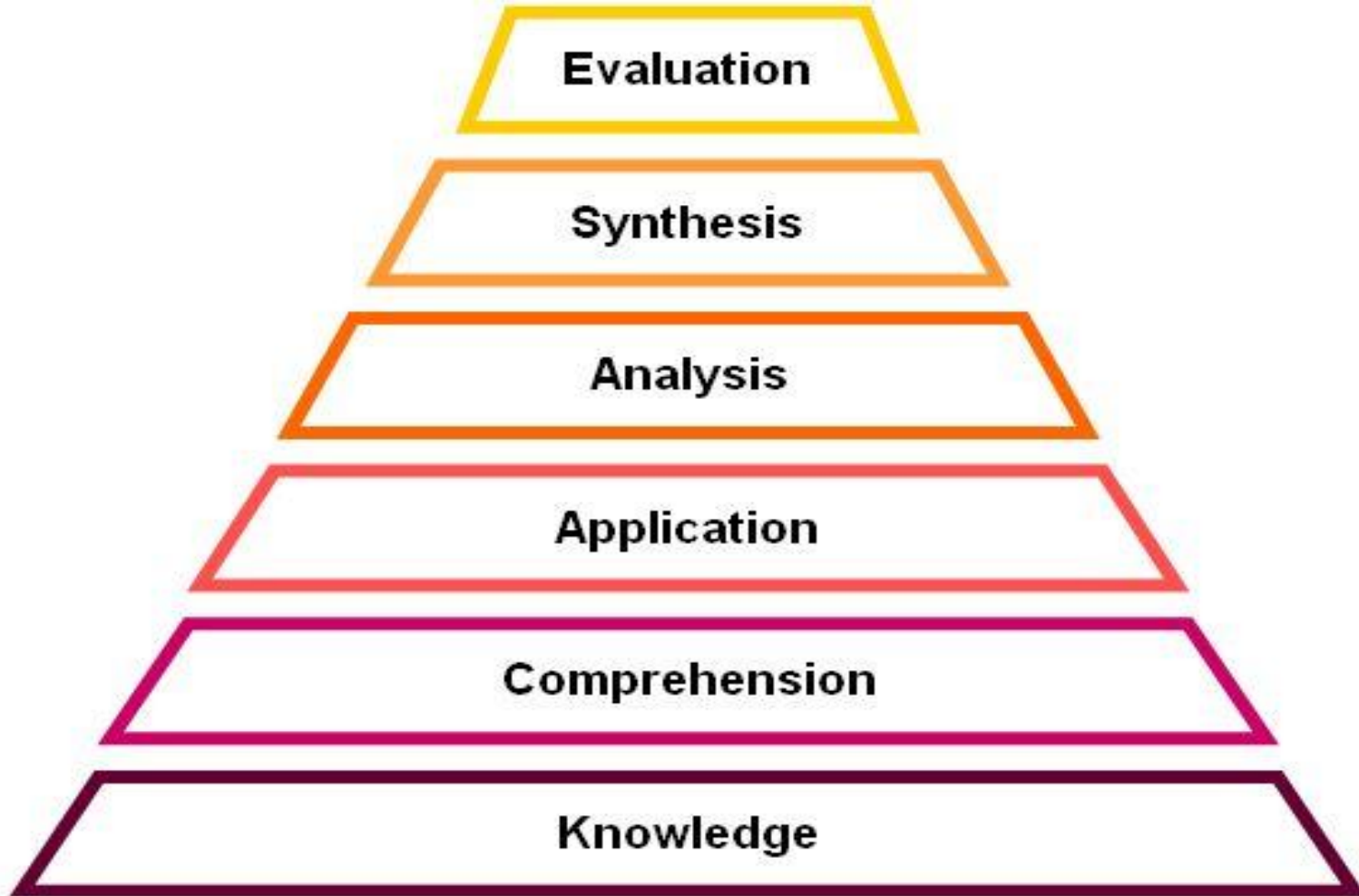
The key skills required can be broken down as follows:

- Technical skills
 - Recording skills
 - Mixing skills
 - Technical knowledge
 - Developing innovative technical solutions
- 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

- It can be seen, 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”.
- 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).

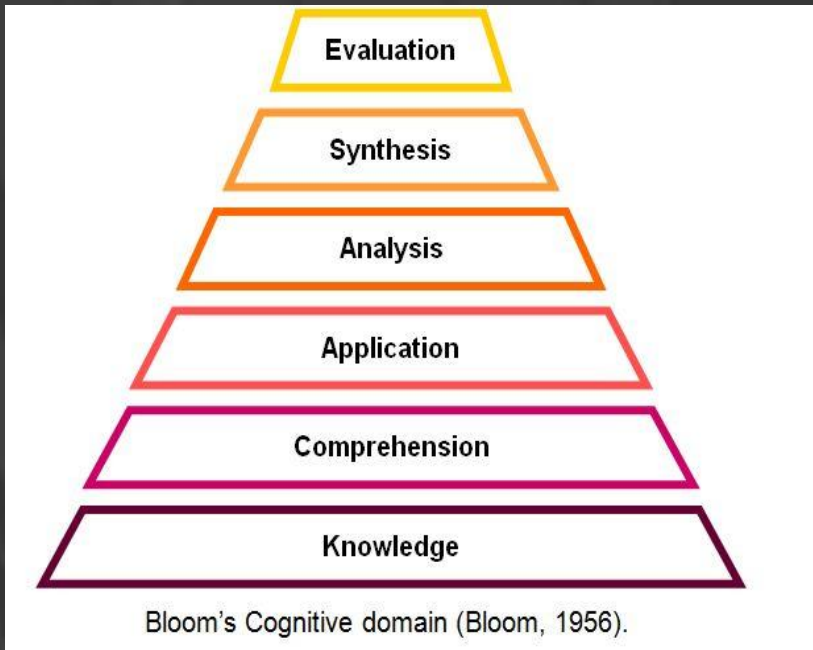
Bloom's cognitive domain



Bloom's Cognitive domain (Bloom, 1956).

Bloom's cognitive domain

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.



It is possible for a number of students to acquire knowledge and comprehension in the field of Audio and Music Technology.

Effective application of this knowledge is essential for ensuring a successful career.

Reflective analysis is essential for practitioners to learn from their mistakes and handling unpredictable issues.

The key to deep understanding and high level practice is in the innovation (synthesis) and evaluation of new and bespoke techniques.

Practitioners at the top of Bloom's cognitive domain can develop their own ideas, put them into practice and evaluate and evolve to perfection.

Effective learning strategies

Learning from mistakes

Feedback has been shown to be the single-most contributing factor for influencing the level of students' achievement.
(Hattie, 2002)

Students also learn from their peers' and teachers' mistakes = accelerated learning.

Fear of failure can be a barrier, students need to learn to handle failure in safe environments.
(Covington, 1985)

Maintaining student engagement / diversity of teaching material and learning styles

Students' engagement and attention wanders after 10-15 minutes.
(Thomas ,1972)

The type of teaching aids and learning materials used can heavily influence student interest and participation.
(Petty, 2004)

Effective learning strategies

Teacher as mentor and role model

“No printed word, nor spoken plea can teach young minds what they should be. Not all the books on all the shelves – but what the teachers are themselves.”

Rudyard Kipling, discussed by Rose (2004)

Learning by doing

“Learning is not a spectator sport. Students do not learn much just by sitting in classes listening to teachers, memorizing pre-packaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences and apply it to their daily lives. They must make what they learn part of themselves.”

(Chickering and Gamson ,1987)

Learning in a low risk professional environment, in teams, using industry tools, commercial pressures.

Learning by case studies

Teaching with reference to case studies allows the inclusion of the discussed learning strategies

The following case studies incorporate:

- Professional level projects
- Learning by doing and through other peoples experiences/mistakes/failures
- Practise what you preach – teacher as role model
- Diversity of material presented

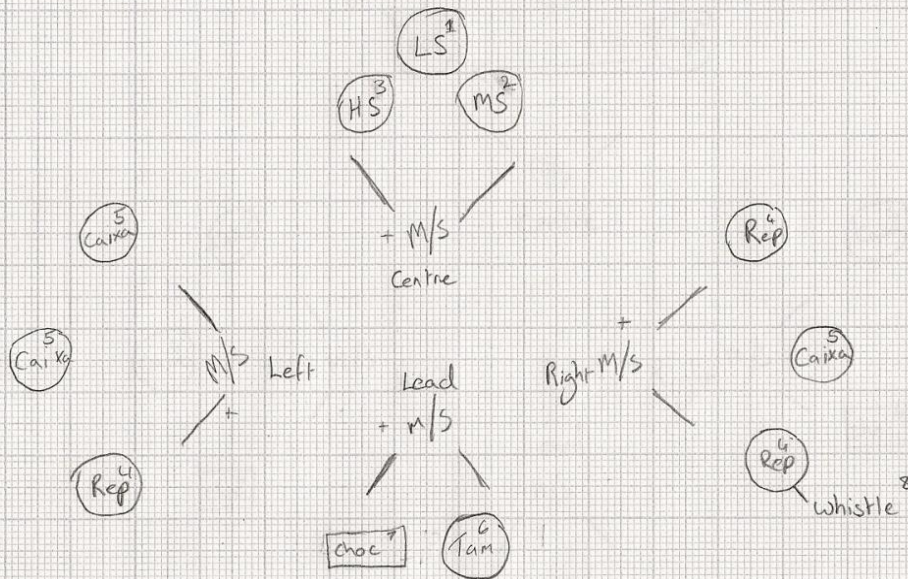
To assist students climbing Bloom's cognitive domain in Audio and Music Technology

Case study 1 – Samba band recording



Case study 1 – Samba band recording

Microphone positions: Mid-Side (m/s)
Spaced pair (s/p)



- 1 - Low Surdo
- 2 - mid surdo
- 3 - high surdo
- 4 - Repini (Tom)
- 5 - Caixa (snare)
- 6 - Tamborim -
- 7 - Chocalho -
- 8 - whistle

Microphones:

- centre: Rode K2
C414*
- Left: TLM 103
C414*
- Right: TLM 103
C414*
- Lead: U87
C414*
- Ambience: NT5 L
NT5 R

* note * all C414's had
-12dB pad + 40Hz filter

Effective note taking!

Case study 1 – Samba band recording

- [http://barney.inspire\(anglia.ac.uk/inspire_j/samba.html](http://barney.inspire(anglia.ac.uk/inspire_j/samba.html)

Samba



1 : The Desk

2 : The Mics

3 : Introduction to the Instruments

4 : The Track

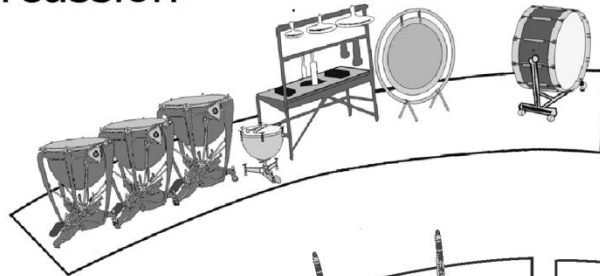
00:03

06:32

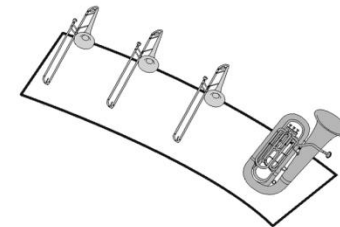


Case Study 2 – Orchestra recording

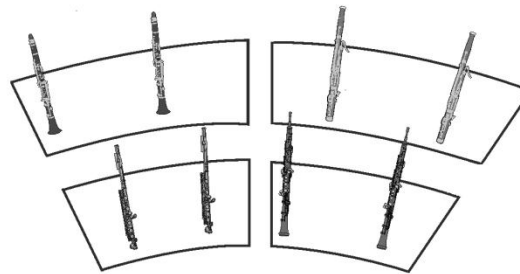
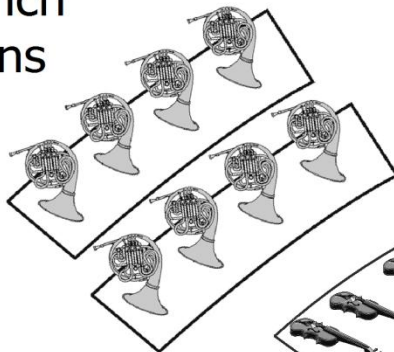
Percussion



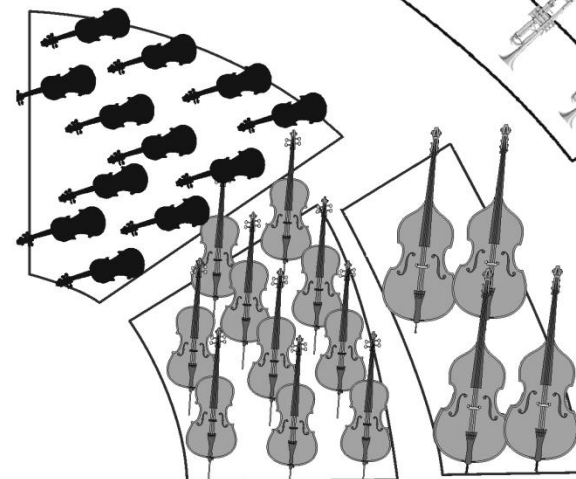
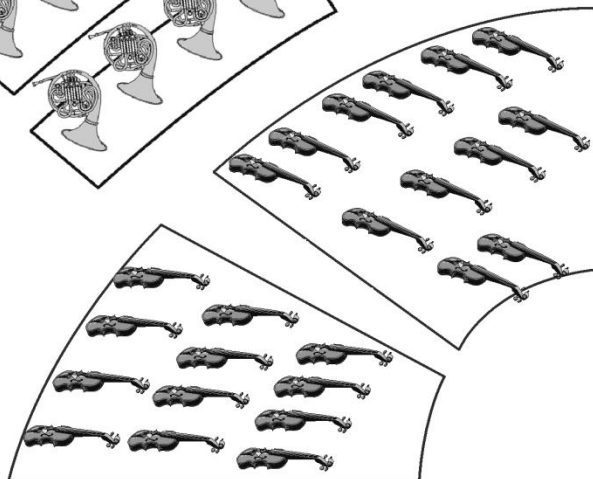
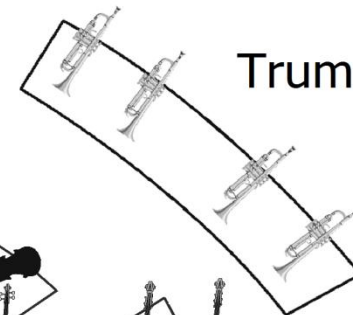
Trombones & Tuba



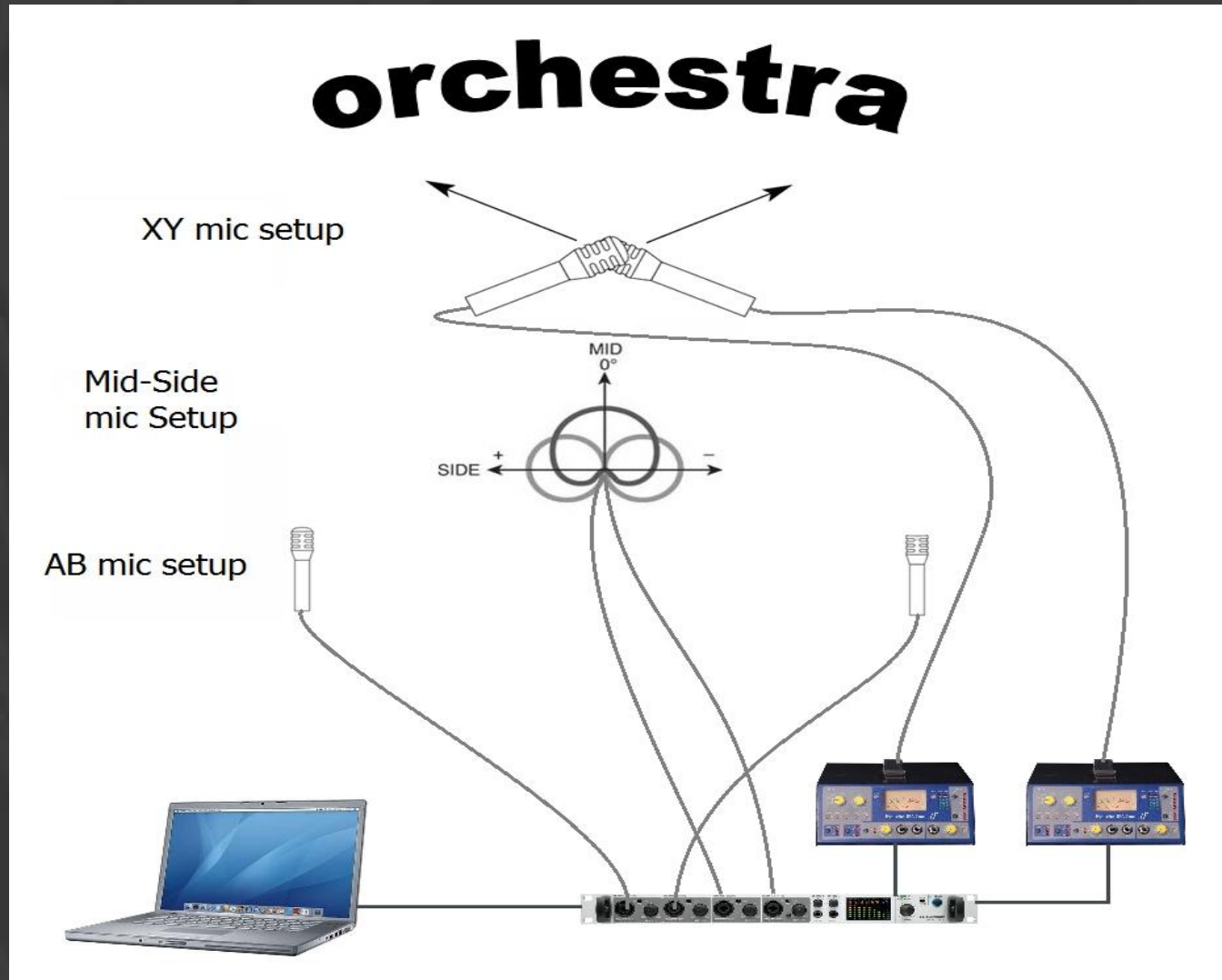
French
Horns



Trumpets



Case Study 2 – Orchestra recording

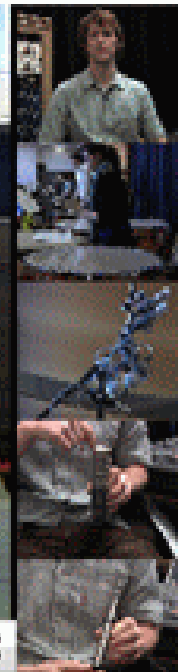


Case Study 2 – Orchestra recording

http://streaming.inspire.anglia.ac.uk/media/recording_an_orchestra.html

Recording an Orchestra

presented by Dr. Rob Toulson



| | |
|--------------------------|-------|
| Intro and Pre-production | 03:08 |
| Project Management | 00:58 |
| Equipment | 02:00 |
| Intro to mics & XY Pair | 02:50 |
| Spaced Pair | 01:43 |



Case Study 3 – Elbow live at Abbey Road

<http://www.soundonsound.com/sos/sep09/articles/elbowabbeyroad.htm>

<http://www.youtube.com/watch?v=hk2xaeXnxIM>



Conclusions / future work

- First step on the ladder, but a danger of ‘teach by Youtube!’ and ‘teach yourself’ attitudes. These methods need to supplement, not replace existing methods
- Teacher as role-model – we need more industry interaction. Industrialists stepping into education and educators having a foothold in industry.
- More work experience opportunities required.
- Wider evaluation of developed case study material to gather feedback from teachers, students and industry representatives
- Develop innovative products and methods for media driven education in music technology (2nd life, virtual worlds?)
- Combination of efforts – cross-faculty, multi-institutional approaches?

References

- Bloom, B., Englehart, M. Furst, E., Hill, W., & Krathwohl, D. (1956).** Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain. New York, Toronto: Longmans, Green.
- Chickering, A. W. & Gamson, Z. F. (1987).** Seven principles for good practice. AAHE Bulletin, 39(7), 3-7.
- Covington, M. V. (1985).** Strategic thinking and fear of failure. In J. Segal, S. Chipman, & R. Glaser (Eds.), *Thinking and learning skills: Relating instruction to research* (pp. 389-416). Hillsdale, NJ: Erlbaum.
- Hattie, J. (2002).** 'What are the attributes of excellent teachers?' in B. Webber (Editor), *Teachers make a Difference: What is the Research Evidence?* Conference Proceedings, New Zealand Council for Educational Research, Wellington (New Zealand).
- Inglis, S. (2009).** Rupert Flindt: Recording Elbow Live at Abbey Road, Sound on Sound, September 2009.
- Petty, G. (2004) .** Teaching Today (3rd Edition), Cheltenham, Nelson Thornes.
- Rose, D. (2004).** 'The potential of role-model education, *the encyclopedia of informal education*, www.infed.org/biblio/role_model_education.htm.
- Thomas, J. (1972).** The variation of memory with time for information appearing during a lecture. *Studies in Adult Education*, 4, 57-62.
- Toulson. E. R. (2010a).** Samba recording, available online at: http://barney.inspire.anglia.ac.uk/inspire_j/samba.html , accessed September 2010.
- Toulson . E. R. (2010b).** Recoring and Orchestra, available online at: http://streaming.inspire.anglia.ac.uk/media/recording_an_orchestra.html, accessed September 2010.
- Toulson, E. R. (2008).** Managing Widening Participation in Music and Music Production, Proceedings of the Audio Engineering Society UK Conference, Cambridge, April 2008.

rob.toulson@anglia.ac.uk
www.robtoulson.com