The thing about the quotes: "Music Technology" degrees in Britain

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Abstract

This is a paper about the educational landscape of Music Technology in Britain. Betweening is a project funded by Palatine (Higher Education Academy). Its aim is to investigate and collate information about existing models for running degree courses related to the interdisciplinary field of music technology in higher education institutions in Britain. The gathering of this information will result in the provision of data for representing the educational landscape of music technology in Britain and will provide an oversight of the different models used in different higher education institutions.

1 Introduction

In the last couple of years I had to come to terms with the fact that I was a post-modernist. Yes, one of those people, who want to pluralize most abstract nouns and put quotes around all sorts of terms. And even worse, an "interdisciplinary" one at that. (German, as well!) I did not actively chose to be a post-modernist, I was almost forced to become one, simply through the many misunderstanding, that are the norm when living, teaching, and researching between the disciplines in Britain. And that is what the paper is about. How do we facilitate the learning (notice the popular avoidance of the authoritative word "teaching") between the disciplines with minimizing any challenges being thrown at us from all sorts of camps. The challenge is a modern one, the solution, I believe, comes from our post-modernist approaches to knowledge and the institutions that are the keepers of this.

> ***Music Technology Curricula: "Place all the ingredients in a large bowl, stir vigorously until everything is thoroughly mixed together and serve immediately."*** *(Bates 2003)*

Of course we have to also talk about what we are actually talking about. Even post-modernists can't get away with completely diminishing the content for the sake of discourse. "Music Technology" seems such an easy term, but you know as well as I do, that this is not the case. (Therefore the post-modern quotes). In one camp, which I will not name, it is reduced to "merely" commercial music production (and those are no post-modern quotes, but rather simply indicating prejudices and arrogances (in plural) at work.)

But funnily enough, from "outside", "music technology" stands often for just that activity of this, just mentioned camp: electro-acoustic composition. And of course it is so British. You say "Music Technology" and you see blue and red record labels everywhere. But although it might be a uniquely British problem, it might still provide some fun insights into what is happening in education around and beyond this discipline.

2 Music Technologists – a growing phenomena of non-existence?

Do you know any professional Music Technologists? No? I would have been surprised if you had said you did. Not because individuals who have studied "Music Technology" are rare - they are not. In the greater Glasgow area alone we have 3 Universities and several Colleges and a SAE school all providing some sort of education or training which according to UCAS, the British Universities and Colleges Admissions Service, falls under "Music Technology". According to UCAS a multitude of different "Music Technology" degrees exist in Britain (in 2006 exactly 351) and their number is increasing rapidly. (UCAS 2006) So I am sure that you, yes you specifically, must know at least someone who knows somebody who has studied "Music Technology". But as Mark Thorley at Coventry University has pointed out

> *"the degrees around music technology are seen as being highly vocational, although there is no such job as a 'music technologist". (Thorley 2005)*

No such thing. And then there is this thing about the already mentioned quotes. You know, the typical and often cliché-d hand movement, putting quotes - in my case post-modern ones - around every mentioning of the word "Music Technology". Post-modern, because I know, that you know, that I know, that it is not as simple as that: That this term has perceptually different and shifting meanings pending the context it is being used in. That this complexity of its perception is an indication of the fragmentation of our formerly so holistically humanistic concept of knowledge and its education. That is, I have to make sure that you know; - therefore the "quotes". And the hand-movement.

And even in the danger of getting "quote-elbow", the area interested me so much that I simply had to start looking systematically, analytically and comparatively into how this area is taught in the UK, made possible through funding from Palatine. Added to that was a sort of (un-humanist)

self-interest in understanding the difficulties that I was continually facing in my own institution, where I am active in teaching, researching and (sadly) also administering "Music Technology" degrees across two departments and faculties.

3 Triads and their Trials

This area, no matter which perception one has of it, is genuinely interdisciplinary. All its flavors of the subject need a multitude of different disciplines, from acoustics to music performance to composition to engineering to all sorts of other things. Some universities think even forensic science should be one of such other things.

One classic taxonomy (Pope 1993, for those who want to look it up) collated a 4-page list of categories and subcategories and sub-sub-sub categories. Of course there is also the classic, possibly trivial, but often represented triangle of Moore (1990) simply including Science, Music and Technology. No specific order, I hasten to add.

We could allocate to this triangle (see Fig 1) the degree names used in Universities in Britain, and come up with a triad of music technology degrees. Triads are apparently always good, for esoteric and music symbolism and such, but furthermore, it represent nicely the present communities at large. (And their cultural boundaries – speak camps)

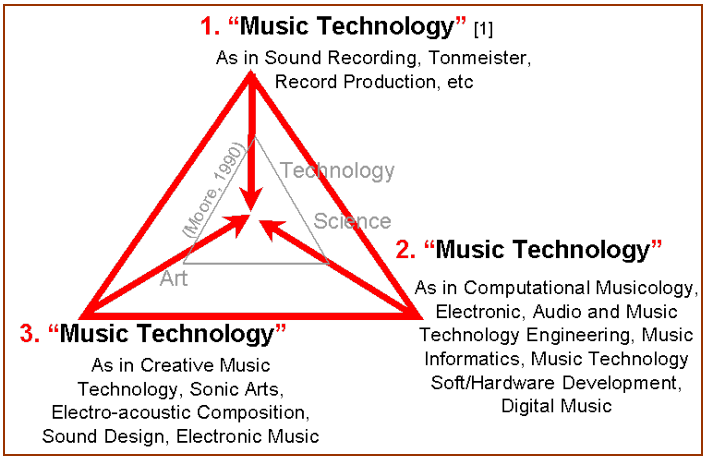

Figure 1. The triad of Music Technology?

Clearly this is an area which reaches not only over different scientific domains, but also over different working and investigatory methodologies, different approaches for presentation and practice, different underlying - but implicit - justificational hypotheses, different vocabularies and terminologies, as well as different conceptual frameworks. And I am not even mentioning (yeah, you bet I am!) that it often reaches over different budgets and administrative units making life as a "Music Technologist" academic - if such a thing would exist - extremely difficult. More often than not are these difficulties being ignored in Higher Education establishments and, like other general degree curricula of multidisciplinary nature, are given as if they fit seamlessly into our traditional, mono-discipline-based academic structure. And this structure is stemming from a still humanist, possibly modernist conception of knowledge and learning. Good? Well not really.

Obviously the fact that I am writing this article and that my elbow keeps hurting (from the quotes, you remember) should make it clear that they do not. Fit in that is.

4 Number-crunching with UCAS data

But first, there was the data. Public UCAS data. It could tell me, possibly not in qualitative, but certainly in quantitative ways, how this area is regarded. And that makes quite interesting reading - possibly only for "Music Technology" interested individuals, but which, according to the data, must be in immense numbers in Britain.

Figure 2. Degree Name Occurrences

Degree Name Occurence		
Music Technology	131	41.9%
Media Technology	36	11.5%
Electronic Music	31	9.9%
Sonic Arts	22	7.0%
Creative Music Technology	20	6.4%
Audio Technology	10	3.2%
Music Production	5	1.6%
Recording	4	1.3%
Sound Engineering	3	1.0%
Rest	51	16.3%

UCAS's category of Music Technology (they use it without the quotes) has 351 degrees. Of the 351 degrees only 131 actually use the word "Music Technology" in the title of their degree. There are 63 different names used in all of these degrees. Amongst them:

Looking at what terminology is used by universities and drawing out from the degree names the most used categories, the following distribution emerges: Music Technology (131), Media Technology (36), Electronic

Arts and Media Informatics/Music, Audio and Music Technology, Audio and Video Engineering, Audio Electronics, Audio Engineering, Audio Technology, Computational Musicology, Computer Science with Music (popular, digital, etc), Computer systems and music technology, Computing and Music, Computing with Music, Creative Music Technology, Creative Music Technology and Sound Recording, Digital Music, Electronic and Audio Engineering, Electronic music, Electronics with Music, Information systems/music, Information technology and multimedia, Music Composition and Technology, Music Informatics, Music Multimedia and Electronics, Music Technology and Innovation, Music Technology and/with Audio Systems design, Music Technology, Music Technology Software Development, Music Technology with Popular Music, Music with Computing, Sonic Arts, Sound Design Technology, Sound Engineering, Tonmeister, etc

Music (31), Sonic Arts (22), Creative Music Technology (20), Audio Technology (10). (See Fig. 2)

62 different institutions are providing these degrees. That means the average British University runs 5.1 degrees around the area of "Music Technology". (See Fig. 3)

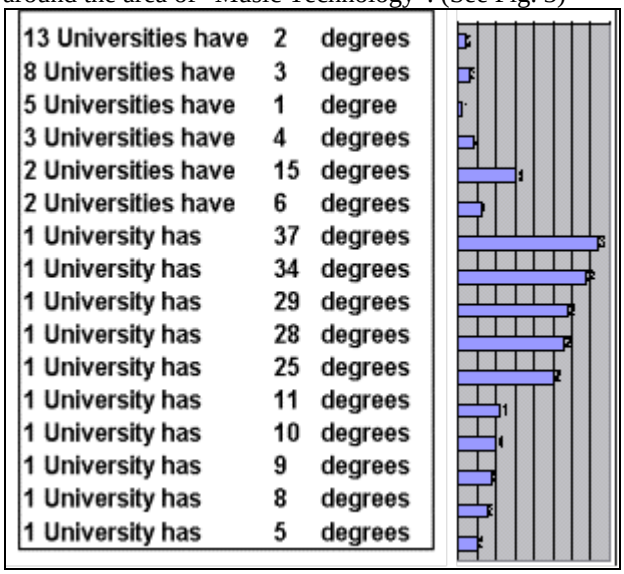

Figure 3. Degrees in Universities in Britain

But you may have noticed in the figure that there seem to be a few universities that run more than 25 degrees around the subject of music technology? 25 degrees? The prize goes to one University with 37 degrees, all with the term "Music Technology" in their degree names.

Well, this is what a colleague of mine called the "Matrix degree": it works like a joint honors model but with a set program. You line up all your single degrees in your university on both x- and y axis, make your Nils down the diagonal, and voila, the rest of spaces are all potential candidates for combination degrees. And in this case 37 of them are music technology degrees with other subjects. From "forensic science & music technology", "astro-physics & music technology" to seemingly more sensible combinations as "computing & music technology" or "theatre/tv & music technology". (See Fig. 4)

> ***"The average British University runs 5.1 degrees around the subject of 'Music Technology'."***

But who is to say what is useful for a society and what is not? We might just need those one or two "astro-physicist-music-technologists" (think "Contact" with Jodie Foster) or "forensic-science-music-technologists" (think CSI). It must be great for the students to have such a choice, it might also be needed by the market to have a few, specialized professionals with all sorts of combinations, but it must be hell for the administration of a university.

Anyway, without those few universities that have "matrix degrees", the number of the average comes down to 3.8 degrees for each university. 59% of the universities have one or two degrees.

Figure 4. "Matrix" degrees

5 Some more number-crunching

American Studies and Music Technology (TWR3)	3FT Hon BA
Astrophysics and Music Technology (FWM3)	3FT Hon BSc
Biology and Music Technology (CW13)	3FT Hon BSc
Business Administration and Music Technology (NW23)	3FT Hon BA
Chemistry and Music Technology (FW14)	3FT Hon BSc
Computer Science and	
Economics and Music T	
Educational Studies and	
Finance and Music Tech	
Forensic Science and M	
French and Music Tech	
Geography and Music T	
History and Music Techn	
Human Geography and	
Information Systems and	
Information Systems and	
International Relations a	
Law and Music Technol	
Management Science a	
Marketing and Music Te	
Media, Communications	
Medicinal Chemistry and Music Technology (FWC3)	3FT Hon BSc
Music Technology and Neuroscience (BW13)	3FT Hon BSc
Music Technology and Philosophy (WV35)	3FT Hon BA
Music Technology and Physical Geography (WF38)	3FT Hon BSc

American Studies/Sonic Arts (TW7J)
Applied Social Studies/Sonic Arts (LWJJ)
Business/Sonic Arts (NWC3)
Childhood & Youth Studies/Sonic Arts (WXJ3)
Crime Studies/Sonic Arts (MW2J)
Cultural Studies/Sonic Arts (LWJH)
Dance/Sonic Arts (WW3N)
Drama/Sonic Arts (WWJ4)
Educational Studies/Sonic Arts (WX3C)
English/Sonic Arts (QWH3)
Film & TV Studies/Sonic Arts (WW63)
Geography/Sonic Arts (LWR3)
Health Studies/Sonic Arts (BWX3)
Human Resource Management/Sonic Arts (NWP3)

The majority of qualifications are BSc's (Bachelor of Science) with 55%, followed by BA's (Bachelor of Arts) at 39%. This number might be an indication that the governmental drive a few years back to boost scientific degrees with a financial incentive has actually worked. Not only are the majority of degrees BScs, also a quite substantial amount of BScs are coordinated by Arts Departments.

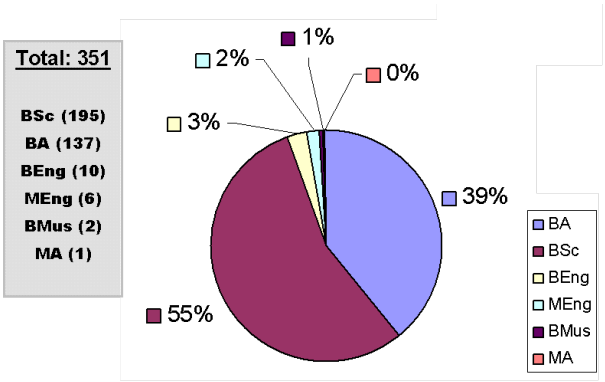

Figure 5. BSc vs BA

Some oddities are noteworthy of noting: There are only 10 BEng degrees and 6 MEng degrees. In general, IEE accredited degrees have the difficulty to fit all the Engineering as well as all the Music needed in this interdisciplinary field into their 3 year time-span. Only 2 of the BEng degrees are coordinated across two departments (Music and Engineering), of these, one is in England and the other in Scotland. As Scotland has traditionally 4 year undergraduate degrees, it generally finds it easier to fit interdisciplinary degrees into

a program which has additional guidelines from accrediting bodies, such as the IEE (Institute of Electrical Engineers).

BMus' and MAs are exceptional cases: in England MAs (Master of Arts) tend to normally be postgraduate courses, a well known West of Scotland University has traditionally had an undergraduate MA degrees, which can make it confusing. Additionally Music Departments have generally kept their own BMus degrees, but as the figure above shows, they are generally not used to denote Music Technology Degrees, but rather used for "pure music" degrees, whatever that means.

The majority of degrees around Music Technology are joint degrees. (See Fig. 6)

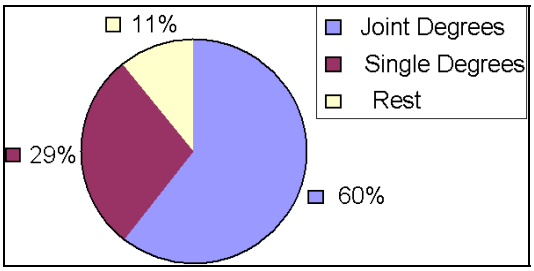

Figure 6. Joint vs Single degrees

As mentioned above, in terms of name occurrence, which is a nice indicator of how educators see this discipline, the majority of degrees use the name "Music Technology" with a whopping 42%. Only at 16% comes Media Technology, followed by Electronic Music (9.9%) and Sonic Arts at only 7%. Looking at how these name occurrences map to BSc or BA degrees, we can see that degrees using the name "Music Technology" have the same number of BScs than BAs. Media Technology tend to be BScs, Electronics Music as well, Sonic Arts half/half and only "Creative Music Technology" has a majority of BAs. (See Fig. 7)

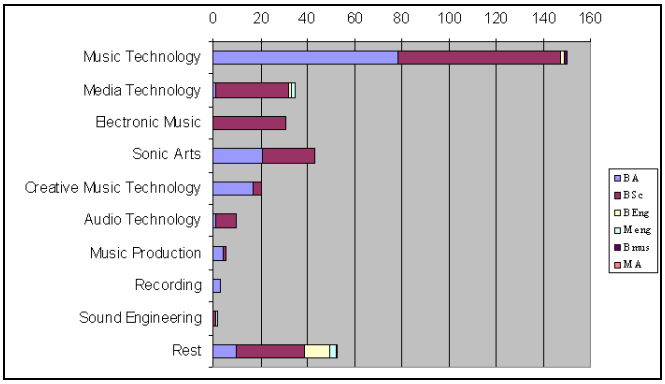

Figure 7. Terms vs Degree Types

6 The interdisciplinary jig-saw puzzle

Looking at how different universities facilitate the interdisciplinarity of the subject area, three major models emerge, sometimes with no clear boundaries between them but rather tendencies towards one or the other model.

a) Contributions but single program: A program for the whole course has been decided before hand. Contributions come from more than one department but with having courses dealing with both areas as one discipline.
b) Contributions and multiple programs: Contributions from more than one department, with students choosing two or three programs for their "interdisciplinarity".
c) Integrating Model: Contributions from one department only, but which brings in staff expertise from relating disciplines.

There has been some research done into the student perspective: the perceptions of what students think this degree is about and the perceptions of employability. (Gummery 2005) A large body of evidence points towards most students evolving their perceptions of professional target and employability throughout their degree course one direction, i.e. broadening. Without having more quantitative data, it is hard to say why. It could very well be a general issue with University education, and no comparative studies between different degrees and student perception exist at this point. But, more alarmingly, it could point towards false perceptions of the profession around "Music Technology" at the stage of entering the university, potentially fed by the drive to advertise music technology degrees in a very narrow way: most music technology degrees are advertised with pictures of mixing desks and studios. (And we all know that we are guilty of showing off our high-end gadgetry)

7 The start of a somewhat lengthy conclusion

One could certainly say that "Music Technology's" last decades of economic success in one area of its knowledge/practical domain, the pop-music industry, have sparked a steep increase in the Higher Education degrees offered in Britain. But the degrees in Britain in their entirety reflect the diversity of its subject area(s). Universities have been very successful building on this demand and students tend to want to maintain the interdisciplinary character of this subject. It is also certainly a worthwhile question to ask: do "Matrix degrees" show a demand and academic interest by students or rather a desperateness by Universities in the drive to get higher student numbers? Here the question remains, as Mark Thorley has asked, "who is the client, the student or the industry" (Thorley 2005)

But if there is a demand for interdisciplinarity and broadness, how can we accommodate this educationally? This area is still struggling to come to terms with the different methodologies of its own user community. (Boehm LIMTEC 2005, Boehm 2005, Boehm 2001) Even the diversity of labels for this interdisciplinary subject indicates conflicts of interests between a number of different

stakeholders. But the rapid increase of degrees in this area demonstrates how much is happening at the brinks of the traditional academic disciplines.

According to Mourad, interdisciplinary inquiries are

> *"…efforts to pursue knowledge without being essentially constrained by the structure and content of a single discipline, including subject matter, predominant theories, typical methods, or primary schools of thought. They imply a general desire to conceive knowledge and theoretical practice in new ways." (Mourad 1997)*

We should add to his list terminologies. But how can we accommodate interdisciplinarity in our mono-discipline structured education system, of which the challenges and barriers have been explored already, and so will not explore in this article.

8 Some post-modern views about interdisciplinarity and Higher Education

We can say that the age of specialisms is new, and we should ask the question if we do really need deep specialisms without broad interdisciplinarism?

> *"Early modern natural philosophers were more often than not dilettantes in their experiments and humanists by education. It is unlikely that a new Leibniz should emerge today. But it is possible that, if he were alive now, he would still try to open gates." (Arikha, 2005)*

Following on from that, we could also postulate that the project of modernity in University education may have failed.

> *"'The project of modernity' stems from the 18th century (age of enlightenment), aiming at developing objective science, universal morality and law, and autonomous art according to their inner logic." (Habermans, 1983)*

The notion that a department could have experts in all areas of the degree subject area stems from this notion. Also that we can study a subject in all its forms, that its boundaries are clear and defined. But our knowledge has grown beyond the ability of universities to provide educators in all these fields, or as Sperber postulates

> *"Current disciplinary system may be becoming brittle" (Sperber, 2005)*

We need a post-modern acceptance of fragmented but self-organising areas of knowledge, in which

> *"particular foundations would emerge in the course of the inquiry rather than be predetermined in the form of discipline-bound theories, methods, and schools of thought." (Mourad 1997)*

So we are in need of a new way of teaching and learning and researching, and most of all administering our knowledge. The post-modern way would be for university policy makers to accept and accommodate these new concepts of fragmentational knowledge and self-organizing areas of interdisciplinary domains of knowledge. And this where the foundations of a subject area are created where needed in the inquiry and out of the inquiry rather than pre-ordained and culturally engrained in specific disciplines.

Obviously on the other hand, one could also ask if there is possibly more merit, certainly less resistance, of absorbing (exclusive) parts of an interdisciplinary domain within a traditional discipline and otherwise leaving everything as is.

I feel, that we are seeing this in Britain (and possibly other countries) today. Since 2001 we have finally managed to convince the traditional educational sector (mainly the Research Assessment Exercise) that composition is a research activity and assessable as such, on the par with other musical activities, such as editions and scholarly approaches. But with it came, surprisingly and without warning, the exclusion of the rest of computational musicology or "Music Technology" (or whatever you might like to call it). In the Engineering and Computing Science Departments, there is still the problem of acceptance of research between music and science and the music departments in Britain in generally have decided to accept electro-acoustic composition as the one music technology they could let into the camp. Electro-acoustic Composition and Sonic Arts has found its place neatly and snuggly, and the rest of "Music Technology" has been left out in the rain.

But there might also be a third possibility: There is certainly evidence that this interdisciplinary domain is becoming its own separate discipline, sometimes too self-referential, and with its own school of methodologies, approaches and practices. But I ask, is the making of just another camp beneficial to this area?

Having looked, learned, and experiences this area for more than a decade, in three different countries and in industry and academia, I am, and cannot be anything other than a post-modernist. Despite all the "quote-elbow" pains it may cause me, in order for interdisciplinary subjects such as "Music Technology" to flourish, without prejudices and discipline-specific cultural constraints, I, for one have to keep believing in methodology free zones that allow research to happen at the brinks of and in the spaces between disciplines. Spaces where new theories emerge out of the enquiry and where they are informed but not bound by pre-existing schools of thought.

The time of the post-modern concept of research and education is dawning. For some enlightened institutions, it may have already arrived. For the rest, let's really go beyond just talking about supporting interdisciplinarity, let's really do it.

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