Music, Movies and Meaning: Communication in Film-makers' Search for Pre-existing Music, and the Implications for Music Information Retrieval.

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ABSTRACT

While the use of music to accompany moving images is widespread, the information behaviour, communicative practice and decision making by creative professionals within this area of the music industry is an under-researched area. This investigation discusses the use of music in films and advertising focusing on communication and meaning of the music and introduces a reflexive communication model. The model is discussed in relation to interviews with a sample of music professionals who search for and use music for their work. Key factors in this process include stakeholders, briefs, product knowledge and relevance. Searching by both content and context is important, although the final decision when matching music to picture is partly intuitive and determined by a range of stakeholders.

1. INTRODUCTION

Although evidence from the period is sparse, it is likely that music has been used to accompany moving images since the Lumiere brothers' presentations in 1896 [17]. Music was either written especially for the purpose, or consisted of a mixture of well-known favourites drawn from classical and popular repertoires. Gradually these ad hoc combinations of music and film have led to a multi-million dollar worldwide creative industry and there is an accompanying wealth of theory on how music works with film. Directors such as Quentin Tarrantino and the Coen Brothers spearhead a wave of film makers using existing music in their productions, and this widespread trend has spun off into television, advertising, and computer games. This widespread use raises the questions, 'who chooses what, why and how?', which this investigation attempts to answer. The research focuses on identifying the communicative practice and decision making undertaken by creative professionals who choose music for multimedia texts (films, adverts, television programmes). This set of professionals is an under-researched sub-group of the music industry, and this paper contributes to the literature by focussing on their work processes, which may inform the development of systems that attempt to meet those users' information needs.

2. BACKGROUND

2.1. Use of music in films

Although music was originally used as a mood enhancer and narrative aid for the cinema audience it gradually became an essential part of the film itself, 'to colour a scene, to suggest a general mood, to intensify a narrative or emotional tension' [17:145]. The interpretation of film music depends on the listener [21] and there are two main areas of analysis and interpretation, the music itself, and its interaction with the film [9]. The meaning of the music is successfully transmitted to the audience through means of agreed cultural codes – whether these are major/minor for happy/sad or consonance/dissonance as light/shade, as well as style topics, tonal design, leitmotiv, timbre and musical and filmic form [21]. Using pre-existing music means considering how the viewers' familiarity with the music might determine meaning, and being aware that these meanings can change [23].

2.2. Communication And Meaning

As the research subjects of this investigation describe their needs with words, a semiotic approach may be of value in successfully analysing the music in their collections. In semiotics, signs, (including words). are interpreted by the community according to agreed codes. Musical signs would include elements of notation (slurs, clefs), the music itself and its surrounding texts (cd sleeves, photos, videos), and genre names and theory terms [26]. Owing to the importance of connotational signification within music, where the use of signs/sounds such as a car horn sound effect within a piece is to act as music rather than to tell you a fast moving vehicle is approaching, in order to understand the meaning of music it is important to learn the cultural meanings encoded by the music. It is only through this that the intertextuality or dialogism of modern popular music, which frequently carries important codes by referencing other music, films and literature, can be fully appreciated.

If music retrieval systems are to effectively retrieve music for the end user then they need to be able to incorporate the listener's meaning of music. Different listeners have varying ways of giving meaning to the music they hear [19], and historically this has affected the

way it is organised and retrieved. The context and the content of the music both come into play. Although music semiotics initially focussed on the content of the music there have been moves towards analysis of the contextual elements [4, 20, 25, 26]. This reflects calls both within the text information retrieval (IR) [29] and music information retrieval (MIR) communities [11] for user centred research. Musical code links the sound and its context, and understanding these codes should help establish musical meaning [27]. In the case of music, codes become increasingly specific: langue, norms, sub-norms, dialects, styles, genres, sub-codes, idiolects, works/performances [4, 20]. Competences are required to successfully interpret these codes and these competences will vary according to experience, background and interests [25]. These can be incorporated into established communications models [24] in order to explain the communication process that is taking place when listening to music. Hall [12] discussed how encoding and decoding cultural messages would lead to the audience influencing the message as well as determining its meaning. A key model was developed by Tagg [26] which incorporated codes and competences as symbols and socio-cultural norms. Here the problems of mis-communication are caused by incompetence and interference. The flow of information is also described as a one-way process (from Transmitter or producer to Receiver or listener). It has been proposed that a user centred model would more accurately reflect the process of meaning-making when choosing music on behalf of others, as meanings shared by User and Owner will be used to determine the relevance of music choices [14].
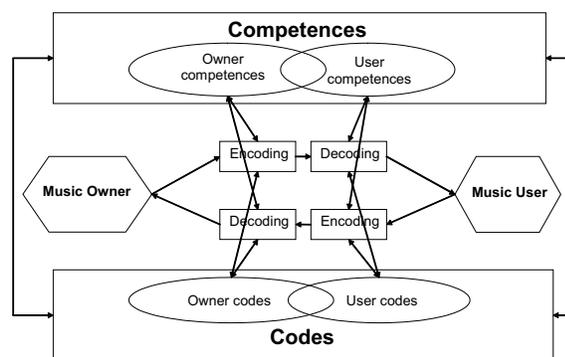

Figure 1 User centred communication model [14]

This model underpins the development of the current investigation into the musical decision making processes undertaken by creative professionals working in, or with, the film and television industries. It has also helped develop the aims, objectives and methodology of the bigger MIR project of which the current investigation is one element [14].

3. METHODOLOGY

3.1. Approach
A user-centred approach was taken for this investigation. There have been numerous examples of qualitative user-focussed research in both the text IR [2, 8, 13, 15, 29] and MIR communities [1, 7, 10, 18]. Some of this research has used surveys to investigate large populations of recreational users, while others interview users, and examine rich web queries and 'music discovery' diaries.

A breakdown of the music industry was derived from British Phonographic Industry literature [3] which showed the industry comprises two key areas: Music Owners (Artists, Record Companies, Music Publishers) on one side and Music Consumers (Recreational users) on the other. An additional layer is found between these two sides, informed by the researcher's extensive experience working in the commercial music industry. This layer, which includes advertising agencies, film companies, and broadcasters, is a 'filtering' layer of Music Users, which exploits the music in some way before it reaches the Consumer. These organisations are choosing music on behalf of Consumers rather than for their own recreational purposes. It is the aim of this research to investigate the communication process between the Music Owners and the Music Users (Fig 1).

3.2. Sample
The respondents interviewed all work with music, are mainly at a senior level and are very experienced in the use of music when accompanying moving images. Ten people were interviewed: five represented the music rights holders (publishers, record companies) and five worked with music in the film and television industries. The respondents were chosen using a snowball sampling technique [22] which, although biased owing to interviewees being inter-connected, is an accepted theoretical sampling method, which has been used to gain access to 'hidden' or constantly changing communities. It is more flexible than random sampling, allowing the researcher to follow leads or themes from one interview to the next, and a normally quite inaccessible population with expert knowledge is more readily available. The sample will be widened as research develops, in order to determine the generalisability of these results.

3.3. Interviews
Semi-structured face-to-face interviews were done at a time and place convenient to the subject, lasting up to one hour. The interviews were recorded digitally and transcribed by the researcher. Before each interview the researcher noted a number of areas to discuss, based on what had already been discovered from previous interviews and other research. This flexible approach meant that there was no need to ask redundant questions

and allowed the interviewees to talk freely about the issues that were important to them.

3.4. Topics and Questions

The exact wording of the questions varied, and sometimes the planned questions were not asked directly because answers had been given answering another question. However the researcher always had a list of areas to cover. These focussed on the process, the use, queries, communication, meaning, relevance and relationships. Areas of discussion included participant's work role and relationships with other stakeholders; the extent to which they use and search for music in their job; queries and systems they use in searching; the type of material that satisfies their requests; and whether they could recommend improvements to the process.

3.5. Ethics

University ethics guidelines were used as a framework, and all subjects were sent an explanatory statement and signed a consent form. Each interviewee was given a code to aid in anonymising their comments, and information which may identify them has been removed.

3.6. Analysis

The transcribed texts and recordings were read and listened to, focussing on discussions of the process and the issues that were felt by the respondents to be of importance. Common areas which were raised are discussed in section 4. This is a preliminary analysis designed to inform the researcher of the main issues and how the process takes place, these are subsequently compared to the reflexive communication model in Figure 1. This research is part of an investigation into the information seeking behaviour of Users, which is significantly influenced by the world they are a part of. The discussion that follows highlights some of these real world issues and relates them to Figure 1.

4. RESULTS AND DISCUSSION

4.1. Stakeholders

The interviews were started by discussing a subject the respondents knew well, their day-to-day work and their perceived role in the process. This allowed them to settle in comfortably to the interview process and relax. One of the key themes raised by this question were how on both sides there were large numbers of stakeholders involved in the process, in addition to the Consumers (Fig 2).

'You get a creative team, who write the script, who are probably in their twenties, and invariably, whatever music they're into, be it hiphop, electronica, grime, whatever, they'll want that on the ad. You get a creative director, their boss, who's probably a generation older, who wants something he's never heard on an ad before, so it stands

out in the ad break and gets noticed, and then you've got the client, who's probably into classical or jazz or something like that, and he'll want that on it, and then you've got the target market, Debbie the housewife, who's 35 got three kids and lives in Sheffield who's into Madness. And you've got to find one track which all those people will buy into and say, 'Yes, we want this track on our ad'. So it is difficult at the best of times.' (003 music publisher)

Music Owners	Music Users
Synchronisation Dept, Legal / Business Affairs, Composer, Performer, Marketing & Promotions, Artists & Repertoire	Producer, Director, Film Editor, Music Editor, Music Supervisor, Client, Director, Ad Agency Creatives.

Figure 2 Stakeholders

Once a selection of pieces of music has been offered to the User, the stakeholders are brought in to reach a decision on the piece of music that will be used. Each of the stakeholders is likely to have different motivations, codes and competences, and these are not easily resolved. The criteria behind the decision making will include budget, clearance issues, aesthetic and commercial judgments. Whether the music enhances the picture seems to be the most important issue, although this will vary according to the producer (budget, market), director (picture as a whole), editor (the story), music supervisor (aesthetic and administrative) and audience (in test screenings). However this is not easily evaluated, most respondents resorting to 'gut feeling' when asked to describe what makes a great sync.

'And I think I think the hardest thing about searching for music for an advert is it's an opinion, and it's a take on a brief. And it's a take on visuals. And it's what you think works.' (007 record company)

4.2. Briefs

The query comes generally from the User to the Owner as a brief, which may take the form of a short informal email, a more widely circulated document which has been approved by internal User stakeholders, a script element, a conversation, or a moving image in the form of a clip of a completed ad.

'It's very easy to actually try stuff against picture and know whether it works and know whether a really odd idea is really worth playing somebody. (002 independent music supervisor)

The Owner may have the opportunity to clarify key issues with the User. These issues would include budget, deadlines, more detailed information on the use and context, or guidelines on the type of music that is sought.

The User frequently works with a 'temp' track of music that is not going to be used in the final product, but can be used for similarity queries. Normally a range of Owners are approached with the same or a similar query. These will be drawn from favoured or targeted contacts within the industry who are likely to make an offer that meets the aesthetic, time and budget constraints of the User.

According to the model, different musical codes are likely to have varying relevance for each query. For example, while a director may require a particular song, a music supervisor may extract the codes from that recording that are important to the meaning the director is attempting to convey, and match them to other recordings that may be more affordable or are not so obvious, uniqueness being an important decision-making factor.

'And sometimes if they want a track, for example, they can't have – let's say they want the Stones and there's no way they can afford it, they've only got thirty grand or something, you have to find something that's equally going to impress them as much as the Stones is. And I think that's by finding something unique that's going to work to picture.' (007 record company)

These codes would have increasingly granular specificity, from highly specific (different artists performing the same song in a similar style) through to different artists from other musical traditions that may have important perceived similarity, not necessarily musical but more relating to image and status. User codes are conveyed to the Owner as a brief, which may focus on the qualities of a product ('*speed, power, control, ability*', '*beauty, sophistication and intricacy of design*' *(011 ad agency supervisor)* or key words, such as '*tension, mystery, playfulness and warmth*' *(011 ad agency supervisor)*. The Owner may have different competences and interpret these emotive connotations of signification differently to the User, although a sharing of codes and competences will reduce this semantic gap. A selection of songs are offered that are deemed to match the brief and the User makes a choice. There are frequent references to a 'left field' suggestion, which does not appear to meet a brief, being chosen as the 'perfect' sync. In these instances it is possible that while the User felt the song did not 'meet the brief', because of a mis-match between competences, the Owner's view of the track was that it was not at all left-field but an obvious match for this query.

4.3. Product knowledge

The Owners then attempt to match the brief to their catalogue, which may consist of up to one million pieces of music. If the brief is clear – a specific piece of music is required, or a specific genre, era, tempo or style is described, and if the Owners' catalogue is able to match those search terms to its metadata, the specific piece is found and terms negotiated, or a selection of pieces are offered to the User. These may be sent via email or ftp or on a cd, played to picture in an editing suite with the User present, or sent already matched roughly to picture using consumer software. The choice offered will vary in quantity depending on the brief. A small number of Owners offer a web-based facility to Users whereby they log in to production folders of music put together by the Owner, which include downloadable tracks as mp3 and wav (for broadcast). Then either feedback is received from the User to guide further searches, one of the songs is chosen and a license is negotiated, or the User does not contact the Owner again, choosing material elsewhere.

The search by the Owner is of particular interest. During the interviews some described how, rather than search the whole catalogue, they would refer to existing searches that they had done for similar queries, and discussed how they usually browsed their own collection, which was narrowed-down from the catalogue in terms of it's 'sync-friendly' nature. Removing material that was not likely to be used for synchronisation was very important to them, often citing narrative or offensive songs as being difficult to use owing to the lyrics obscuring the message of the picture. Their 'bespoke' collections are organized using very specific terms, such as 'instrumental – surf' and 'female vocal – 1950s' which they feel relate more to the queries they receive than the artist-album-title-genre format. An unclear brief means the Owner has to use their experience and product knowledge to 'second guess' the Users needs. Experience as a film maker helps in this area and some of the more successful practitioners have experience on 'the other side'. Most of them used iTunes as their personal media library and when doing a search referred both to their company catalogue and to the outside world, including the iTunes store and their own collections, and bringing in expert advisors from within and outside their company when specialist music was required that lay outside their own product knowledge. Great importance is placed on 'knowing the catalogue' rather than relying on a bespoke search engine and the respondents spend a large amount of time listening to music in order to familiarise themselves with it in order to maximise any opportunities for exploitation.

'A big part of my day is always every day at least fifty per cent will be listening to music. And if I can get more of the day to listen to music, I will. I mean there's just so much..' (005 independent music supervisor)

While the Owner is performing the search for the User, the User is exploring other avenues for music for use. They will not only be approaching other Owners, but will, again, search their own collections and look at their previous similar searches, use the iTunes store to listen to samples of tracks, and refer to web-based resources such as Google, All Music Guide, Pandora and last.fm. They also may have experience on 'the other side', are experienced in searching for music and are driven by a passion for music that is matched by in-depth knowledge.

4.4. Relevance

When the User is supplied with a selection of material this is listened to in order to evaluate its relevance and narrow down the selection. The choices are then matched to the visual. Other stakeholders are involved in this process, their input varying by their importance and ability to argue their case. While the relevance appears mainly to be gauged by 'gut-feeling', a term used by many respondents, probing revealed contextual factors such as target audience, genre, uniqueness, budget, availability, recognisability and chart position, and content features such as tempo, structure, mood, instrumentation, texture are all considered. It is here that the query becomes more concrete, and a further iteration can be made much more specific, when the User can refer to features of offered material as reference points.

5. IMPLICATIONS FOR MIR AND COMMUNICATION MODEL

It can clearly be seen from the analysis of the process that this is similar to the interactive information retrieval system used in online databases. The system consists of a knowledgeable and expert User, an equally knowledgeable and expert intermediary (the Owner) and a system (the record company or publisher's catalogue). It could be suggested that the expert intermediary be removed from the process (disintermediation) and the User allowed direct access to the collection [5]. This situation is discussed in a recent survey of graphic designers search for music [16] which indicated the value of online systems when looking for music to accompany presentations. This could reduce the problem with inadequately worded briefs as an interactive system would allow the User to adjust the query until a satisfactory result has been found. However it raises some problems. The Users have very limited time budgets and are reluctant to use these doing 'narrowing down' searches that can be delegated to others. Secondly, there are numerous Owners, so this approach would require the User doing searches on each Owner's bespoke search engine. However it appears that the expert knowledge of the Owners is frequently invaluable, as they know their catalogue well, and some of them have real experience in the use of music in film, and are prepared to match music to picture themselves in order to encourage the User to choose that piece of music over the others available. This experience in each other's world also means the Owner and User can encode and decode each other's meanings more accurately, they are aware of the other's codes and competences, and can accommodate these in forming their requests and results.

Mapping these results to the communications model in Figure 1, we have shown that there is a relationship between the Music Owners and the Music Users in terms of searching for and providing music. The Users have a piece of film, and are attempting to communicate meanings with that footage. These meanings are encoded into a query, in the form of an informal note or a brief, which is generated by a number of stakeholders, all with competing codes and competences. This brief can be of any level of specificity, ranging from a specific piece of music, to offering the piece of footage itself and asking for the creative input of the Owner, who attempts to match codes and competences with those of the User. These offerings are then sent back to the User, who, depending on how much s/he shares codes and competences, may agree or disagree with the choices on offer.

6. CONCLUSION

While the communication between Owners and Users has been shown to be reflexive and interactive, representing an interactive information retrieval system, the professionals in this sample were not schooled in searching through large collections. Their primary motivation seems to be to find the 'best' piece of music to communicate their meaning. Although there are some search engines available for this type of use, human involvement is central in the process. Attempting to build systems that meet the information needs of these users should be flexible, incorporate queries by example as well as by matching established metadata (including lyrics), and allow searching by content as well as contextual information. It is often the use that determines the choice, and it is rare that the initial query will name a song or an artist except as an example of what would work but is not available. The clearest briefs appear to be moving images, so matching video features to music features could be a worthwhile avenue of exploration. Using musical meaning to enhance moving images requires an understanding of the contexts and contents of both media and further user research is required to inform successful systems development if these needs are to be met.

7. FUTURE WORK

This preliminary analysis of interviews has been used to describe the process in choosing music for work purposes in the music and film industry. It is planned to analyse these texts more closely over time, to draw out nuances and detail of the discourses, and investigate the interpretive repertoires that are used by the participants in the process when talking about searching for and using music. This will provide a view of 'macrosociologically relevant cultural regularities' [28:26] which are used by participants and will inform a wide ranging research project on searching for and using music from large collections across the music industry, including games, broadcasters and DJs, which will also investigate and evaluate key systems to provide a holistic evaluation of searching for music for work purposes.

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